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ABSTRACT

The purpose of this field study was to determine the effect of using achievement motivation simulations on the vocational development of high school students. Two hundred 10th grade students from four Washington, D. C. schools were randomly divided into a control and an experimental population. The control population remained in the regular curriculum, while the experimental population received one week's training in achievement motivation simulations. The sample population was divided by schools into two equal experimental and control groups. All 200 participants were pre- and post-tested with the Vocational Development Inventory, the Semantic Differential, and the Classroom Climate Scale one month before and one month after the simulation. Statistically significant differences between treatment and control groups in three out of four schools demonstrated that vocational maturity increased as a result of the treatment. No statistical effect on other variables relating to school and vocational attitudes was achieved by the treatment. Follow-up studies and the evaluation of using simulations and psychological models should be conducted. (Author/AG)

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BUILDING A PSYCHOLOGICAL CAREER AWARENESS MODEL A Field Study to Evaluate the Effectiveness of Achievement Motivation Simulation on Career Development

by

Richard E. Carlson

August 1972

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District of Columbia Public Schools
Washington, D.C.

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Special thanks is acknowledged to Dr. Carl Schaefer, a scholarly leader in the field of vocational education and professor at Rutgers University, for his contribution and support of the study.

FOREWORD

In the past, career development has mostly been confined to theoretical constructs by academically oriented psychologists. Conceptualizations on choice, success and happiness along with the maturational path of career development have been repeated targets of the theoretical researchers.

Therefore, for a change, it is a pleasure to recognize research that is focused on a practical educational intervention designed to stimulate vocational maturity. As such, the combining of personal growth strategies along with vocational development theory, promises to be an exciting venture in pragmatic pay off for the student. Epitaphs are written for those who sit back on our pedagogy rather than take as a challenge a realistic problem of educating students for their life career goals.

This study represents an advance in a possible career development intervention process. It is only a beginning and needs continuous verification, however, in my opinion this is no small achievement.

Carl J. Schaefer

July 7, 1972

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ABSTRACT

BUILDING A PSYCHOLOGICAL CAREER AWARENESS MODEL: A Field Study to Evaluate the Effectiveness of Achievement Motivation Simulation on Career Development.

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Overview

The purpose of this research was to determine the effect of using achievement motivation simulations on the vocational development of high school students. Two hundred tenth grade students from four Washington, D.C. schools were randomly divided into a control and an experimental population. The control population remained in the regular curriculum while the experimental population received training for one week in achievement motivation simulations.

Design

The sample population was divided by school into two equal experimental and control groups. The total sample was pre-tested one month prior to the treatment and approximately one month after the treatment each group was post-tested. All the participants in the study (200 students from four schools) were pre and post-tested with the Vocational Development Inventory (Crites, 1966),

the Semantic Differention (Osgood, et. al., 1957), and the Classroom Climate Scale (Litwin, 1969).

Conclusions

There were statistically significant differences between treatment and control groups in three out of the four schools. The research demonstrated that vocational maturity increased as a result of the treatment.

Two other hypotheses relating to attitudes toward school and vocation and perceptions toward school were rejected. The treatment had no statistical effect on these variables.

Discussion and Recommendations

This study presents evidence that an intervention treatment can positively effect vocational maturity as measured by Crites. Perhaps this study can assist the many schools which are trying to develop delivery systems for their career education programs.

The study needs replication and careful follow-up studies of all subjects is paramount. Other studies, to train career counselors and teachers, should be conducted to determine whether the psychological model will be as effective for them.

A final suggestion for further study is the evaluation of using simulations to stimulate the total learning process.

CHAPTER I

INTRODUCTION

During the past decade America has witnessed an indictment against its educational system in the form of riots, bombings, school violence, drug use, increased dropout rate and generally low school achievement. Flanagan (1967) in a recent study of 440,000 high school students all across the country, concluded that schools fail to help students develop a sense of personal responsibility for their own educational, personal, and social development, and that it is the responsibility of schools to prepare students more fully for citizenship and mature adulthood.

Questions challenging the fundamental values and objectives of our educational institutions are coming from young people. The resentment toward the schools, polarization of students, feelings of confusion and growing hostility may be symptoms of our failure to educate students for career, and life goals. Adolescents are confronted with important and upsetting questions such as, career, independence from home, college, vocational training, and the "future," which demand rational and clearly thought-out answers. When these demands are placed in the context of: the draft, immorality of war including its atrocities; the

problems of racism; and the selection of a mate; their solutions become increasingly difficult Mosher and Sprinthall,(1970).

Solutions to these problems must be made in a world where societal and vocational change are evolving at a fantastic rate contributing to: (1) pressures for educational reform; (2) changing economic system in which there is limited use for the untrained and uneducated; (3) social pressure for educational upgrading (usually away from trade and industry careers) and; (4) new technologies which require re-thinking of the patterns of vocational education.

Commissioner Marland (1971) in recent addresses discusses the need for relevance, the need for accountability, and the need for redesigning school programs so that all students will have the skills to qualify for immediate employment or skills to continue their education upon completion of high school. Governor Rhodes (1970) suggests that vocations are a matter of attitude and commitment; that our system of education must incorporate theconcept of work within the curriculum starting at the first grade.

Most vocational psychologists view the concept of occupations and careers as developmental in nature. Roe (1970) states career development as a self-categorization process based on interests, attitudes, abilities and other personality factors, which have

their origins in early childhood. Ginzberg, et. al. (1951), were one of the first to articulate a career development theory and gather data on the theory. They suggest that career development is a ten year irreversible process which has three periods: fantasy, tentative, and realistic. Then finally succeded Super's (1963) "Self-Concept Theory" of vocational development. This views the process as sequential life stages or events. Eventually career is translated as self-concept implementation of the individual -- this stage being viewed as offering the individual the greatest congruence between self-attributes and job requirements. Tiedeman and O'Hara (1963) and Crites (1970) also support the development or maturational aspects of career development.

Vocational psychologists while offering a plethora of career development theories have also enumerated the complexity of factors affecting today's youth in the area of career decision making. Current practices in our schools point to few if any clear manifestations of modified practice in career decision planning, Super (1955), Wrenn (1963) and Thompson (1954).

Evidence by Wrenn (1962) and Kaufman and Schaefer (1967) show career development to be of low-priority in terms of implementation and expenditure among school administrators. Reasons for reluctance or inability of school systems to incorporate aspects of

contemporary career development theory into their day-to-day operations, might have been due to difficulty of making the theories operational.

Classroom instruction in achievement motivation has been found to be related to the career decision making process. It has stimulated awareness within participants that they were active agents in determining the direction of their educational and vocational plans (McClelland, 1961, 1969; Alschuler, 1967, 1970; and Kolb, 1965). Super and Overstreet (1960) give evidence that concern with career choice and acceptance of responsibility are important characteristics in boys' readiness to make mature vocational decisions.

Although schools are not incorporating career developmental theory as part of curriculum for many reasons, they seem to proceed in a vague, haphazard way in educating youth for life and expect youth to equip themselves with the tools of career decision planning. Guilford (1956), Brayfield and Crites (1964) and Super (1961) have all voiced strong pleas for more practical research into the career decision process.

Over the years the problem stated broadly has been with the concern of career development for youth and the role of the school in assisting with this priority.

Our educational institutions are encountering

extreme pressures to make meaningful change. Schools are challenged with the task of initiating programs which can assist youth in their career development. The process of career development is seen as maturational by vocational psychologists. Schools generally have not utilized career development theory to assist students, however, new techniques show promise in the teaching of career decision making.

STATEMENT OF THE PROBLEM

This study will address itself to the effects and outcomes of simulation training on career awareness development. Specifically, this study will be concerned with the problems of determining if positive changes in career decision skills can be achieved as a result of simulation training, i.e., the teachability of career decision making through use of simulation.

HYPOTHESES

Hypothesis 1: There will be statistically significant differences between the treatment and control groups in the degree of vocational decision making attitudes as measured by the Vocational Development Inventory (Crites, 1966).

Hypothesis 2: There will be statistically significant differences between treatment and control groups in attitudes toward Vocational and Educational concepts as measured by the Semantic Differential Questionnaire (Osgood, et. al., 1957).

Hypothesis 3: There will be statistically significant differences between treatment and control groups in school perception as measured by the Classroom Climate Scale (Litwin, 1969).

DEFINITION OF TERMS

The following terms to be used in this study are arranged in alphabetical order and not as they appear in this study.

Affective -- an emotional process which deals with values, attitudes, and interests of the mental process, Affective is one of the three domains classified as educational objectives by Bloom and Krathwohl et. al. (1964). The Career Awareness Project incorporated simulations which were designed to stimulate affective objectives.

Achievement Motivation -- McClelland (1962) defines achievement motivation by suggesting that when the desire for achievement becomes a dominant concern for an individual, this desire expresses itself in restless driving energy toward a goal of individual excellence. Beating one's competitors, doing things better, being more efficient and finding unique solutions to problems are all examples of achievement motivation.

Career Awareness Training -- an affectively based program using simulations to allow participants experience in career planning and decision making concepts. (See procedures.)

Cognitive -- the intellectual process by which

knowledge and understanding are gained about things, ideas and perceptions through the faculty of thinking.

Simulation -- games/exercises which provide participants in the career awareness project, life-like problem-solving experiences related to future career planning and decision making. (See Career Awareness, Carlson and Cantor, 1972.)

RATIONALE FOR THE HYPOTHESES

The hypotheses formulated for this study are predicted on studies reviewed, and several years of unvalidated work with inner-city populations using achievement motivation simulation for the purpose of orientation to vocational training.

Studies by Clarke, Gelatt and Levine (1965) in the teaching of effective career decision making skills to subjects in Palo Alto, California, indicated the feasibility. Success was validated after a six year evaluation. The research objective was "improving the quality of educational and vocational decision making for all students" (Yarbroff, 1964, p. 7).

Katz introduced a booklet, You: Today and Tomorrow for vocational guidance classes. The booklet used in thirty hours of classes was aimed at initiating the career decision making process within the students. Two major evaluations by Shimberg and Katz (1962) and by Gribbons (1960) of over one hundred schools showed that courses using the booklet, or techniques from the booklet, apparently helped students to a better awareness of their own abilities, interests, values, and the students seemed more willing to assume responsibility for their own decisions. The motivational level of the students did not seem to be affected by the thirty hours of class instruction using the booklet.

An attempt to teach decision making at Boston University's College of Basic Studies was made by Field (1964). He reported a method of evaluating from self-reports of students whether they had an attitude of being in control of their own destiny. Teaching decision making was one segment of the freshman psychology course. First it consisted of self-evaluation using test scores, achievement, etc.; second the student was asked to analyze vocations in his individual classification and value system; and the third step was synthesizing the first two for an integrated look at "self" and one's occupation with an explanation for congruence or non-congruence. The project produced positive results from a subjective vantage, however, objective value was limited because the project was conducted without a research design as the following quote indicates:

> Our investigation leads us to conclude that, for all practical purposes there is no research directly related to the teaching of decision making. (Wilson, 1970, p. 173.)

Boocock and Coleman (1965) suggest that games can correct the defects of the judging aspects of the teacher's role, the rigid reward system and the mis-matching of time within secondary education. Johns Hopkins has developed games which include a Career Game, a Legislative Game and a Community Disaster Game. However, there is a lack in the area; teaching

career decision making.

Simulation using achievement motivation games was used at the State University of New York Urban Center for the past three years in an attempt to teach vocational awareness to newly recruited disadvantaged students. Unfortunately this work was not conducted for the purpose of research, therefore the results while showing great promise were not validated.

It seems logical that simulation provides an opportunity for directed change. Cruikshank (1966, p. 23) defines simulation as the "creating of realistic games to be played by participants in order to provide them with lifelike problem-solving experiences related to their present or future work."

Many of the learning goals of achievement motivation simulation are similar to the maturational learning stages theorized by Super (1953, 1957, 1963), Brophy (1959), Lewis (1967) and Tuckman (1970). It has also been found to be related to the decision making process that stimulates awareness within a person that he is an active agent in determining the direction of his educational and vocational behavior (McClelland, 1961, 1969; Alschuler, 1970).

Teaching career decision making through simulation has exciting implications; i.e., that students can internalize the process of vocational decision making by direct educational methods.

In summary, studies indicate the feasibility of teaching effective career decision making skills. Approaching this goal via achievement motivation simulation can provide the empirical evidence that career decision making can be taught through psychological models.

SIGNIFICANCE OF THE STUDY

Several recent developments on the national and state levels are offering the promise of career education within our secondary schools. The educational institutions have really not devoted much attention or resources to implementing programs designed to assist youth in the career development areas: i.e., attitudes, decision making skills, work values, self-appraisal, etc.

Teaching career decision making through simulation seems like a natural step to assure an orderly process in the students' career development. If students can learn and be able to use the decision skills for careers then they can become active agents in determining their vocational behavior. Vocations are often based on luck or fate. There seems to be too little planning or conscious decision making on the part of youth in the area of careers.

Equipping students with the tools of career decision making might have profound effects on the

individual's motivation in school. He may in fact find his relevance. The schools share the responsibility of career readiness with their students. Presently, it has a track record of over fifteen million yearly dropouts and millions of graduates without salable skills. The results of this study could contribute to the development of certain training programs within the schools which stimulate behavioral change in vocational decision making.

Researchers have clearly indicated the maturation aspects of career development (Super, 1953, pp. 185-90; Ginzberg, et. al., 1951). In spite of the research and theoretical positions, career development in most schools does not commence for the student until long after the process is theorized to have begun. This study could determine if the maturational aspects of career development can be stimulated in the classroom setting, and whether the predestination associated with career decision making could be shattered.

Using simulation to teach career decision making has many advantages for the school system: (1) it provides for the affective as well as cognitive process; (2) it can be content oriented; (3) it has both individual and outside evaluation possibilities; (4) the training can be transferred to life situations; and (5) cost, replication, time control and experimentation are possible with its use.

The following literature review sets the theoretical tone for this study. It is divided into four major parts.

CHAPTER II

REVIEW OF THE LITERATURE

The whole review of literature to follow has as its tone the following quote:

> Beyond mere survival, the quality of a man's life is a function of the decisions he makes. In a very real sense a man is his decisions. (Wilson, 1970, p. 145).

The literature reflects the goal of this study which is to determine the effect of simulation training on vocational decision making. The simulation training consists of exercises in achievement motivation extending over a five-day period. The review of the literature focuses on studies in achievement motivation, career development theory, simulation theory, and video feedback.

STUDIES RELATED TO ACHIEVEMENT MOTIVATION

McClelland (1955) presents the theory of achievement motivation as a social-psychological synthesis which refers to achievement oriented behavior. The theory assumes that all motives are learned and that they develop through an experiential process of affective learning. "A motive becomes a strong affective association characterized by an anticipatory goal reaction and based on past association of

certain cues with pleasure or pain" (McClelland, 1955, p. 226).

Maslow (1943) in his theory of human motivation suggests that man is a wanting animal and his goals are in a hierarchy of prepotency. As the psychological needs (goals) of safety, love, esteem, and self-actualization are encountered, they monopolize the consciousness and capacities of the organism. As the goals are satisfied, they become less prepotent, and in the goal of self-actualization, Maslow feels that discontent and restlessness will develop within the individual unless he is doing what he is capable of doing. Man's hunger for self-actualization might well be his motivator.

McClelland (1962) defines achievement motivation by suggesting that when the desire for achievement becomes a dominant concern for an individual, this desire expresses itself in restless driving energy toward a goal of individual excellence. The syndrome of beating competitors, doing things better, getting ahead, being more efficient and finding unique answers to difficult probelms are examples of achievement motivation.

McClelland (1958, 1961, 1965) cites data to show that an individual with a high need to achieve is: more self-confident; functions through decisiveness, not through chance; takes personal responsibility for

decisions; sets moderate achievement goals with calculated risks; maximizes his effort by researching the environment, i.e., making more accurate long-term plans -- not letting elements of time or immediate pressures control one's destiny; and has a strong concern for immediate feedback, i.e., knowledge of results as to how well he is doing or making decisions.

McClelland (1962, p. 146) in discussing his achievement motivation research states that it has taught him that, "Men can shape their own destiny; that external difficulties and pressures are not nearly so important in shaping history as some people have argued; it is how people respond to those challenges that matter, and how they respond depends on how strong their concern for achievement is."

A rationale for the development of advanced economic growth in the United States was offered by McClelland (1961). According to him America developed a new character type who learned to be high achievers through social or parental origins. He cites Weber's hypothesis that the Calvinist Doctrine and its emphasis on individual excellence helped create achievement motivation in people as a rationalization for life. Winterbottom (1953) demonstrated the possibility of the Weber's Hypothesis in a study of mothers with high and low achieving children. The training recieved by the high achieving children corresponded to the

protestant reformation of Calvinistic Doctrine of self-reliance values.

Burris (1958) in his dissertation study, taught achievement thinking to students based on their achievement imagery. He found that the students not only learned achievement thinking but showed significant increases of grade point average over the control group. McClelland (1961, pp. 417-18) suggests that working with a person's fantasies might be the most direct method of increasing his achievement motivation. He shifted from exploration, social origins and economic consequences of achievement motivation and devoted himself to the study of how motivation in individuals could be increased. The insight into the possibility of actually increasing motivation within individuals led McClelland (1965) and Lasker (1966) to design achievement courses. These courses were taught in many parts of the world and resulted in significant behavioral changes in the participating businessmen. Previously psychologists believed in a kind of predestination, i.e., what happens early in life determines adult personality characteristics forever after; only time consuming reconstruction of early childhood dynamics through psychoanalysis was considered effective in promoting adult behavioral change. McClelland's (1965, pp. 6-8) data showed that over sixty percent of the men involved in the

course became unusually active in business in some observable way, i.e., starting new businesses, making more profits, being more innovative, etc. Lasker (1966) found that forty seven (47) percent of the participants showed higher levels of activity as compared to fourteen (14) percent in the two years preceeding the achievement motivation course.

Kolb (1965) conducted achievement motivation exercises to twenty intellectually competent, but underachieving students who were enrolled in the summer enrichment program at Brown University in 1961. A matched control group which was also enrolled in the summer program was studied along with the experimentals. A follow up study showed that the grades of both the experimentals and control groups improved the first semester after the course. The grades of both the controls and the experimentals characterized as lower-class returned to pre-program levels after one year. The grades for the middle class experimentals not only improved after one year but were still improving one and one half years after the training.

Aronoff, et. al., (1965) investigated possible cultural factors responsible for the failure of Kolb's work with lower-class boys. This study led to the revision and creation of new exercises and games. It also led to the speculation that perhaps achievement motivation training was ineffective because doing well

in school didn't meet the students' criteria of relevance.

McClelland and Winter (1969) in a three year follow-up report of the impact of a series of achievement motivation courses given to adult businessmen, conclude that the training stimulated greater entrepreneurial activity than normal maturation or current types of executive training programs. They also present evidence identifying what specific inputs (course content) are responsible for long-term changes. They found the following to be effective: (1) exercises which taught the thought and action motivation; (2) procedures which provided the mechanism for affective and cognitive supports for the specific change the person desired; (3) procedures to help individuals focus on making careful long-term plans (goals).

Alschuler (1968) feels that any learning situation can be viewed as a game with goals, rules and teams of players, etc. He presents a taxonomy of games that can be used to diagnose the motivational demands of learning situations and also games or simulations to teach achievement motivation. Clayton (1965) and McClelland (1966) show evidence that achievement motivation levels within an individual can predict success. In other words, people tested high in achievement motivation levels usually have the ability to

make realistic short and long term career decisions.

Morris (1966) also presents evidence that individuals with high levels of resultant motivation will pick careers more suited to their talents, while individuals with low levels of resultant motivation will make unrealistic career choices, irrespective of their measured intelligence. Parks (1968) found that achievement motivation can easily be adapted to the normal curriculum. He found that the use of achievement exercises within academic content areas was effective in promoting better grades in the course.

STUDIES RELATED TO CAREER DEVELOPMENT

Roe (1956) views career development as a self-categorization process based on interests, attitudes, abilities and other personality factors, which have their origins in early childhood. She feels the individual's occupation or career is his primary source of need satisfaction.

Ginzberg, et. al., (1951) were one of the first to articulate a career development theory and gather data on the theory. The four basic tenets of their theory are:

1. Occupational choice is a developmental process which typically takes place over a period of ten years;

2. The process is largely irreversible;

3. The process of occupational choice ends in a compromise between interests, capacities, values and opportunities;

4. There are three periods of occupational choice.

The Ginzberg group was concerned with how and why people choose and adjust to career occupations. Their work is of interest to this study because of the timing for teaching career decision making skills.

Super (1951) theorizes that when a person expresses his vocational preference, he is in fact stating the kind of person he is. In other words, choosing a career would be a way for the person to implement his "self-concept;" the occupation being the vehicle whereby an individual can play the role which is appropriate for himself. Super (1953, 1957, 1963) states that individuals possess a number of self-attributes (traits and characteristics) some of which are relevant to their vocations. According to him selecting vocations or training which offers greatest congruence between self-attributes and job requirements is seen as self-concept implementation. Briefly, the elements of Super's (1963, pp. 11-14) Self-Concept Theory of Vocational Development are:

1. Self-concept formation -- developing through the process of exploration, self-differentiation and identification;

2. Translation of self-concept -- into occupational terms through identification, experiences and developing awareness;

3. Self-concept implementation -- selecting the vocation or the specific training for a vocation or career.

Perhaps simulation in achievement motivation could be the mechanism whereby individuals would be assisted in implementing elements of vocational self-concept theory. Lewis (1967) substantiated Super's self-concept implementation theory. He also found significant tendencies for those who indicated vocational self-concept implementation to be rated higher by their direct supervisors.

Brophy (1959) found in his studies that the more congruent the self-concept and the occupational concept, the greater the job satisfaction for the individual. Oppenheimer (1966) showed that people prefer occupations perceived as congruent with their self-concepts. Tageson (1960) found positive and significant relationships between harmony of self and occupational role concepts.

Torrance (1951, 1954) using self-concept data in counseling concluded that students in his study at Kansas State College lacked ability to evaluate their potential accurately and, therefore, set unrealistic goals. The knowledge of self and role requirements within the self-concept implementation stage were not developed by the students.

Tiedeman and O'Hara (1963) describe career development as a series of sequential life stages of

events. The individual's meaning is in congruence with society's meaning. The major emphasis of their study was career decision making process. They feel career decision was divided into two periods:

1. Anticipation -- includes exploration, crystalization, choice and specification.

2. Implementation and adjustment -- includes induction (discovery explanation), transition (relevance for goal) and maintenance of goal.

Tiedeman and O'Hara generally agree with the Self-Concept Theory and have substantiated its maturational aspects.

Wrenn (1959) and Holland (1959) express concerned views as to the utility of Super's self-concept theory, because they felt the theory was too general to be researched and tested. Crites (1969, p. 2) feels that the developmental aspects of career theory can now be accurately measured. He supports the career choice theory: "We have a fairly comprehensive conceptual framework of the stages through which an individual supposedly passes in arriving at a (career) choice," etc.

Tuckman (1970) presents evidence that the level of incorporation of occupational concepts (career development described as self-concept by Super) was significantly increased by students being involved in occupationally oriented programs in the two-year college.

The contributions reviewed are relevant for the understanding of the developmental and decision making nature of vocational development. The most crucial need remains: how can the process of career development be enhanced by simulation?

STUDIES RELATED TO SIMULATION

Simulation techniques have been effective in training military personnel (McClelland, 1970). In a recent article McClelland asks the question, "Simulation, can it benefit Vocational Education" (1970, p. 23). He suggests the answers might be found in the research of training programs with the armed forces. He felt that vocational educators are unduely cautious in accepting and adopting simulation techniques for the classroom.

There has been little, if any, experimental research directed towards deliberately stimulating vocational exploration and decision making (Johnson, 1968).

Resnick (1970) designed a simulation which teaches students to learn strategies. The simulation builds in the competition, involvement, and other interest characteristics. Krumboltz (1967) directed occupational simulations and experimentally tested them with the cooperation of over one thousand high school students. The students experienced such

occupations as salesmen, laboratory technicians, x-ray technicians, etc. The students performed the jobs of those occupations via simulation. The research findings showed that the simulations did in fact increase interest in occupations and learning about them.

The Center for Vocational and Technical Education at Ohio State University has developed simulation training packets in "Supervision and Decision-Making Skills in Vocational Education." The objective of the simulation training is to provide realistic training as all the exercises are similar to actual events. The simulations used were in-basket/out-basket and role play techniques. Meckley (1970) suggests that simulation is an effective technique for training pre- and in-service staff. He states, "Through simulation, the student not only learns the content and functions of his field of specialty; he also learns a lot about himself.

Guetzkow (1962) was one of the early researchers to initiate simulation games for the purposes of research. He states that individuals participating in simulation games take it very seriously. Guetzkow, et. al., (1963, p. 13), Driver (1962) and Alschuler (1970) give evidence that size of the reward has little significance on the simulation involvement.

The American Management Association is a group which specializes in training top executives in decision making processes by simulation. Snyder (1962) feels that there are theoretical challenges in validating simulation experiences, however the experiences can be repeated using different criteria to test our alternatives not chosen by students.

Pool and Abelson (1962) feel that in research the simulation must be so close to reality that it allows too many variables into the study which are difficult to control.

While simulation training is relatively new in research for the teaching of psychological concepts in career decision making, there seems to be greater acceptance of simulation as a process of merit.

STUDIES RELATED TO VIDEO FEEDBACK

One aspect of the career awareness research was to use video as a feedback process with one-half of the experimental population. Live video tapes would be made of students as they were involved in the achievement motivation simulations. These tapes would be shown and critiqued as a feedback mechanism. It was hoped that those individuals who received video feedback and critique would evidence greater positive career development as defined by the three working hypotheses than students who did not receive the video

feedback and critique.

Literature Review

Allen Ivey (1967) discusses the value of using video as a mechanism for teaching communication behaviors. He suggests that live video feedback is one of the few medias which provide direct interpersonal reactions and emotions without a value stigma attached. Looking at one's own actions on video tape has that unique quality of delivering the personal message of behavior modification options.

Through a feedback critique Ivey demonstrated how participants could learn the counselor skills of eye contact, physical attention, and the non-verbal following process. Counselors in the training program evidenced greater effectiveness in the counseling communication skills. Ivey also used video as a means of teaching listening skills and the techniques of inter relationships.

In micro-teaching formats with video feedback the skills of decision making and behavior modification were demonstrated.

> Video feedback provides immediately reinforcement that the new behavior has been learned and is invariably a positive experience for the trainee. (Ivey, 1968, p. 19).

Ivey suggests that in teaching the skills of human relations or decision making the video can play an important part in individual behavior modification.

Perhaps the best teaching in decision making might be by making decisions or seeing via video the results of your own or peer decisions.

Usually an individual does not have a chance to re-examine his behavior in certain decision making cross roads. With the combination of simulation, designed to initiate decision making, a greater meta level of affective learning can take place.

Video can also assist educators in determining what the important skills of learning really are. Ivey (1968, pp. 18-21) feels that video feedback can assist the individual or group in career goal clarification.

Kagan, Krathwohl, Miller (1963) found evidence to show that clients using the video tape play back interpreted incidents in a much deeper manner than in the initial interviews which had no play back. They posited that video feedback with group or peer interaction caused greater interanalyzation than without video or in a one on one situation. Barrows (1970) feels that when a counselor uses even audio feedback in group counseling, the clients will be able to see more clearly from their own frame of reference. He posited that audio feedback would cause students to positively modify their behavior and perceive the counseling relationship as more nearly meeting their needs. The study, however, could not be verified statistically.

In a study (Waltz and Johnstone, 1963) with thirty counselor trainees in an NDEA Institute, video feedback effectiveness was tested. The changes in perception did occur as a result of viewing themselves on tape. They concluded that video tape offers a promise of a unique means of assisting counselor candidates.

Miller (1969) using college freshmen as subjects, found that video feedback was more effective in enhancing self ideal concept congruence than was audio tape, and that audio tape was more effective than no feedback. He found no significant difference between immediate and delayed play back.

Stroh (1968) used video tape feedback in the development of listening skills. He found that there was no difference between the video tape feedback and audio tape feedback in the teaching of listening skills; however the video tape proved superior in reducing the interuptions and increasing the sharing of conversations of interpersonal relationships between individuals.

In a study by Perlberg, Arye & O'Bryant, David C. (1968) it was concluded that video tape recordings along with micro teaching could be used in the development of special teacher skills. Video improved teacher classroom interaction at the college level. Individual models along with the group models motivated self improvement in teaching and learning strategies.

There was a psychological impact caused by the video self-confrontation which stimulated classroom behavioral change. The feedback mechanism seemed to assist in the participatory attitudes in the classroom.

Euchus, Herbert & Haines, Donald (1965) tested the effectiveness of using video in the training of cross cultural skills. One method was to coach trainees after a role playing session. The second method was with video self-confrontation after a role playing session. The results of the self confrontation (video feedback) was far superior for rapid aquisition of cross cultural interaction.

A study by Olivero (1967) on the use of video recordings in teacher education showed that teacher trainees who received video feedback on teaching performance made greater changes in selected behaviors than trainees who did not receive the feedback. Video plus the verbal feedback was shown to produce even greater changes in selected behaviors than verbal feedback alone. The author concluded that video recordings can often help the supervisor to better perform the task for which he is trained.

Video feedback has been used in many teacher training programs; however, there are few if any validated studies that deal with video feedback and its relationship to career development of students (i.e., self-concept formations, decision making).

There are also many conflicting views as to the real effectiveness of video feedback to stimulate behavior modification. Researchers have failed to conclusively satisfy the video feedback question.

The author has piloted several studies in which video feedback with critique was used. Feedback from participants indicate a very positive response to the video crituques. The studies were geared to teaching an affective approach to career education.

Researchers Popham (1966), Barrows (1970) failed to achieve statistical significance via their instruments and recommend further study. Peters et. al. (1970) report that video feedback has stronger effect upon the structures of the self-precepts than did expert feedback or no feedback; however, the effects were not statistically significant.

This research hopes to investigate the possibility of verifying the positive effect that many of the unvalidated studies seem to indicate.

In summarizing the preceding literature review, an attempt has been made to: (1) examine achievement motivation theory, focusing on those studies which relate to decision making and self-concept formation; (2) review relevant career development theories to identify the maturational processes of vocational development; (3) identify through simulations the possible mechanisms of delivery which would be suited

to the classroom teaching process; and (4) examine studies in video feedback to determine if the added self-confrontation with video might lend an added effect toward the goals of this study.

The review of the studies suggests the possibility of incorporating achievement motivation theory with career development self-concept theories. Simulations seem the natural mechanism to advance the learning concepts.

The procedures which follow discuss the sample, experimental design and instrumentation.

CHAPTER III

PROCEDURES AND METHODS

Overview

The purpose of this research was to determine the affect of Achievement Motivation Simulations in increasing the vocational development of high school students. Vocational Development is defined as increased career and vocational decision making skills by the treatment group. The experimental treatment (independent variable) was training in achievement motivation simulations, a process whereby the learning strategies and concepts are taught through the use of exercises and games. The intent of the training was to have the participants come in contact with career concepts and expand their understanding of them through group process experience.

Sample

A total of two hundred (200) tenth grade students were selected from four urban high schools. Two of the schools were classified as vocational high schools. The schools receive funds for the "Disadvantaged" under Public Law 90-576. The student population of the schools is virtually all black and the District State Plan for Vocational Education indicates that the majority of these students would qualify as "Disadvantaged."[1] . The

[1]Manposer Training and Employment Services Administration for the District of Columbia (MTESA) Division of Reports and Data, District of Columbia Public Health.

report also stated that "forty-three percent of the students in the District of Columbia are disadvantaged."[2]

A study to determine the Educational Disadvantage Status of vocational high school students in the District was conducted by the author and submitted to the Assistant Superintendent of Schools. The study included test scores of the Stanford Achievement Basic Battery in Reading and Math through the years 1966 to 1971. The study concluded that "the student population in the vocational high schools in the District of Columbia do indeed qualify for academic disadvantaged funds available through Public Law 90-576, as their test scores fall two or more grades below the national norms.[3]

The Vocational Schools - one school is located in the north west section of Washington, D. C. in the area of the 1968 riots. It serves the vocational training needs of female students. The school has a student population of approximately 500 and 168 of these are in the tenth grade. Eight vocational courses are offered, and each vocational area was represented in both the experimental and control groups. Students enter their chosen area of training at the 10th grade; this is after

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[2] Ibid.

[3] Harcourt, Brace, and World, Inc. furnished the sampling format for the testing. STEP-Manual of interpreting scores in math and reading. ETS, Princeton, New Jersey, 1957, pp. 22-24. Material supplied by Department of Pupil Personnel Services, Pupil Appraisal Division through the courtesy of Dr. Wilber Millard.

conferences with guidance/teacher personnel. The attrition rate for all vocational schools in the District was approximately twenty-six percent. No figures on attrition for the specific school studied were made available, however, it was suggested by the acting principal that attrition was below the average becuase of the all female student population.

The second vocational school is located in the north east section of Washington, D.C. It has a male student population of approximately 800 and 255 are in the tenth grade. There are seventeen (17) different vocational offerings and each of the vocational areas was represented in both control and experimental groups. Counselor estimates on student attrition range from forty to sixty percent for the three high school years.

The Academic Schools - The school is located in the north east section of Washington, D.C. The high school includes tenth through twelth grades. The total school population was approximately 2,000 and 664 were members of the tenth grade class. The student population was both male and female. While the school is classified as academic, fewer than forty percent of its student body enter post-secondary education or formal training programs.[4] Each of the twenty-eight tenth

[4]Information supplied through The Metropolitan Educational Council for Staff Development (METRO) and the school counselors involved in the project.

grade classes were represented in both the experimental and control groups.

The second academic school is located in the north west section of Washington, D.C. Its student population consists of both male and female members. All tenth grade classes were represented in both control and treatment populations.

Selection - Fifty students were selected from a voluntary list at each school. Voluntary status in the study required that students interested in the project return a parental permission slip which was passed out in class. Those students returning the signed permission slips were then listed.[5] The fifty students selected for the study at each school was made with the understanding that the students would be representative of the schools' student populations.[6]

The experimental and control groups were randomly assigned into two groups of twenty-five for each school. This assignment was made by the principal investigator

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[5]The presence or effects of possible volunteer bias or contamination were not investigated. Students volunteering did not know for certain if they would be selected for the study, therefore there seemed to be no obvious reasons why volunteer and non-volunteer groups should differ.

[6]Selection was made by the chief administrative officer or his assistant at the participating schools who stated that random approach at selection was made. While the selection process was not supervised by the principal investigator there seemed to be no obvious reasons why those selected were not representative of the volunteer population.

after all participants had been pre-tested with the following instruments: Vocational Development Inventory (Crites, 1966); the Semantic Differential, (Osgood, et. al., 1957); and the Classroom Climate Scale, (Litwin, 1969).

The participating schools in this study were selected by METRO council (a consortium of post secondary institutions in the District of Columbia for staff development) and the Assistant Superintendent of D.C. schools. The schools were selected on the following criteria: 1) willingness to participate in the study; 2) the contrast of educational objectives, i.e., two vocational schools and two academic schools; and 3) ability of the school to schedule treatment. No attempts were made to estimate the extent to which willingness to participate in the study might bias the sample.

Independent Variable - The independent variable was simulation training versus no simulation training. The training took place on the campus of Washington Technical Institute in Washington, D.C. The participants were bussed from their respective schools to the campus each day. Each participant (control and experimental) obtained parental permission to participate in the study.

The study involved students from vocational urban schools and academic urban schools. Two experimental groups of twenty-five (25) students participated in the

treatment on January 10, 1972 through January 14, 1972. The other two groups of experimentals received treatment on January 17, 1972 through January 21, 1972. The school population from the vocational schools were trained separately and apart from the student population in the academic schools. The determination as to which school receives the first or second treatment week was left on a voluntary basis. The total training for four groups took two weeks. While the experimental groups were involved in the treatment, the control groups were attending their regular classes at their respective schools.

Experimental Design - The Sample group of fifty (50) students per school were pre-tested with three instruments. This total group was randomized (see sample). The experimental group received treatment for five sequential days from 9:00 A.M. to 3:00 P.M. Both the experimental group and the control group were then post-tested with the same or a different form of the pre-test instruments. The same procedure was taken for the remaining participants (see sample). The only difference was that one experimental group received treatment one week after the first experimental group. All students involved in the study were pre-tested on the same date and post-tested at a later date (see instrumentation).

	January 10-14			
Academic School A	N-25	RO_1	X	RO_2
	N-25	RO_3		RO_4
Vocational School B	N-25	RO_1	X	RO_2
	N-25	RO_3		RO_4
	January 17-21			
Academic School C	N-25	RO_1	X	RO_2
	N-25	RO_3		RO_4
Vocational School D	N-25	RO_1	X	RO_2
	N-25	RO_3		RO_4

Experimental Techniques - The specific simulations (achievement motivation exercises) were conducted by four (4) experienced trainers, three of whom were not connected with the evaluation of the study. Their responsibility to the study ended upon completion of the simulation training of the four experimental groups.[7] A training manual was prepared for the participants. (See Appendix A.) The simulations were intended to stimulate interaction among participants in the group. The experimental group was led through each exercise by the trainers, so that each participant could: (1) see how the simulation

[7]The forth trainer had responsibility for project evaluation and final report preparation.

works; (2) experience for himself a wide range of exercises based on concepts of self-insight, modification of attitude, constructive use of feedback, development of trust relationships and so forth. Participants were also involved in the process of decision making and problem solving. The intent of the training was to have the student participants come in contact with career concepts and then to develop and expand their understanding of them through a group process experience. Specifically, the student participants developed skills in: (1) appraising and reappraising values; (2) developing and modifying attitudes toward and about oneself, others and about career-relevant aspects of self; (3) developing awareness of one's own needs and talents; and (4) becoming more creative and more proficient in the career and vocational decision making process.

The specific program at Washington Technical Institute included exercises in: (1) forces learning and goal setting; (2) decision and career planning; (3) working and helping relationships; (4) trust and affiliation; (5) vocations and self concepts. This was followed up by written assignments to assist students in their self appraisal, and the development of a plan of action and a record plan.

In every instance a cybernetic learning loop was used. Essentially this means: (1) initiating an experience with participants via a simulation; (2)

discussion analysis of the specific experience; (3) tying in on generalizing the experience to other life or school experiences; (4) developing or formulating combined concepts of the two; (5) creating new generalizations based on practical actions and questions.

Graphically the loop looks like:

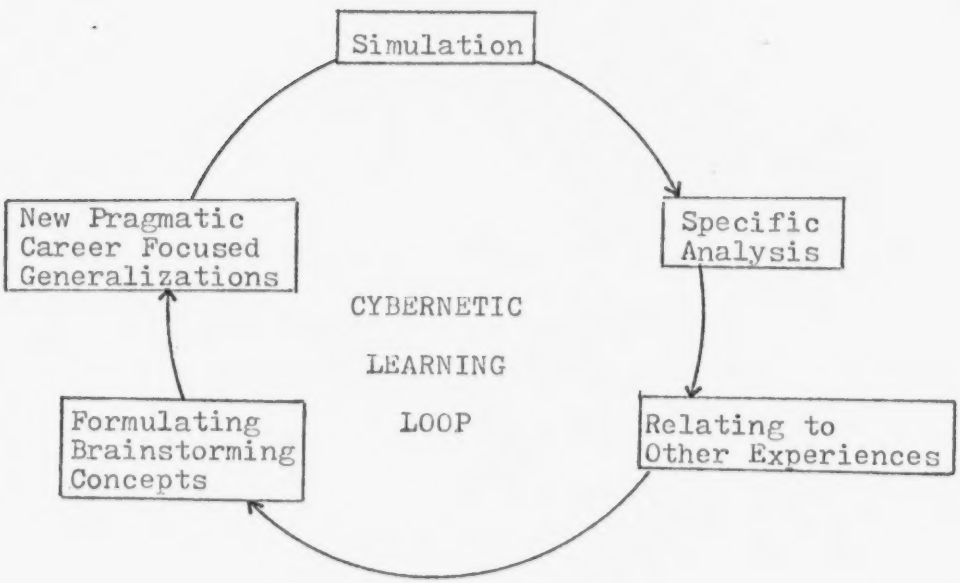

Figure A

Instrumentation - All the participants in this study (200 students from four schools) were pre-tested with the Vocational Development Inventory, (Crites, 1966), the Semantic Differential, (Osgood, et. al., 1957), and the Classroom Climate Scale, (Litwin, 1969). The pre-testing was completed approximately one month prior to the treatment. Post-testing using the same instruments was conducted approximately two (2) weeks after the final treatment or approximately two (2) months from the pre-test.

The Vocational Development Inventory consists of fifty (50) attitudinal statements which assess five (5) different dispositional response tendencies in vocational choice: (1) involvement in the choice process; (2) orientation toward work; (3) independence in decision-making; (4) preference for choice factors; and (5) conceptions of the choice process, (Crites, 1969, p. 204).

Psychometric Characterics of the Vocational Development Inventory have been summarized (Crites, 1969, pp. 89-95). The VDI was standardized on grades 5 through 12, but it is probably most applicable to grades 7 through 12 and to college freshmen and sophomores. It can be used in the upper elementary grades, if students are at or beyond the 5th grade reading level (Dale-Chall Index = 5.17); similarly, it has sufficient "ceiling" for use with college juniors and seniors, particularly if they are undecided or unrealistic in

their vocational choices. The VDI is equally applicable to males and females, the sex differences in item responses being negligible, and it can be administered to students in a variety of curricula, e.g., academic, vocational-technical, general, etc., and from diverse cultural and socio-economic backgrounds.

The VDI can be administered either individually or in groups. It can be completed in a very short period of time, usually from fifteen (15) to twenty (20) minutes. It can be scored either by hand or machine, the latter through the Measurement Research Center, Iowa City, Iowa. The scoring key was empirically derived from differences between the majority responses (= 51%) of the 12th graders in the standardization sample and lower grades. All items are monotonically related to grade, and together they yield a total Vocational Maturity (VM) score.

Although the VDI was standardized both cross-sectionally and longitudinally on large samples, approximately 10,000 students in all, additional normative data have been gathered throughout the United States and in some foreign countries. Percentile norms are available for grades 5 through 12, college freshmen through seniors, vocational-technical schools, disadvantaged groups, American Indians, Mexican-Americans, Negroes, and others (e.g., French-Canadians).

The mean internal consistency of the VDI for six grades is .74, computed by analysis of variance procedures. The Kuder-Richardson Formula 20 estimates are comparable, being in the .70-.75 range for different grades. These coefficients reflect the heterogeneity of the VDI, which was designed to measure several clusters of related but different vocational attitudes. The test-retest stability of the VDI is of the same order of magnitude as the internal consistency coefficients; the mean for six grades, with a year's testing interval, is .71. This figure indicated that the ranks of Ss in the score distributions change somewhat from one occasion to another, presumably because of individual differences in rates of vocational development. That is, over the same period of time, some are maturing vocationally more rapidly than their peers and hence their relative VDI score positions change from one testing to the next.

The "content" validity of the VDI has been established in two ways: first, items were written to operationally define concepts which have been proposed in contemporary theories of vocational development; and, second, a rationally-derived scoring key, based upon the judgments of counseling psychologists, agreed in three out of four instances with the empirically-based scoring key. The "construct" validity of the VDI is evidenced by its relationships to achievement, intellectual variables, such as grades, success in training,

general aptitude task-orientation, and adjustment level, which would be expected theoretically. The "criterion-related" validity of the VDI is supported by its correlations with other measures of vocational maturity, viz., the Gribbons and Lohnes scales of Readiness for Vocational Planning with indices of indecision and unrealism in vocational choice, and with instruments such as the Miller-Haller Occupational Aspiration Scale.

In summary the VDI was rationally constructed from theories of vocational development to measure attitudes which are salient to career decision-making. It is empirically scored, yielding a total VM score, and is applicable to a wide range of grades and groups. It is internally consistent and reasonably stable, and it is related to numerous vocational and other variables.

Statistical Procedures - The statistical procedures used in this study were as follows: The F-test (Homogeneity of Variance) was used as a preliminary test to determine if the variance (spread between group scores) was equal. If the F-test indicated equal variances, the hypothesis would be tested by means of a one-sided Students' t-test for two independent samples. If the F-test indicated unequal variances, a one-sided Satterthwaite's approximate t-test would be used. The data used in this analysis were one hundred and eighty-four (184) Crites Vocational Development Inventory (attitude scale) scores reported by the Measurement

Research Division of the Westinghouse Learning Corporation. The data were the pre- and post-test scores of one hundred seventy eight (178) students who took both tests. The number of students in each school and each sample is given in Table 1. The discrepancy between the original sample of two hundred and the number given in Table 1 is due to attrition.

Table 1

	Control	Experimental	Total
Academic School A	25	24	49
Vocational School B	23	20	43
Academic School C	19	22	41
Vocational School D	23	22	45
		Total	178

The second instrument was the Semantic Differential. The semantic differential is a generalized method of measuring the cognitive meanings of concepts. This method was developed by Osgood, Suci, and Tannenbaum (1957). It is described as a "method of observing and measuring the psychological meaning of things (Kerlinger, 1964, p. 564)." The following description of the semantic differential is presented, including its validity, reliability, and limitations. The instrument (based on the semantic differential concept) will also be described as it was used in this study.

General Description - Osgood, et. al., (1957) make two assumptions concerning the instrument: The first being that the meaning of practically all concepts can be

divided into at least three dimensions which are, EVALUATION, POTENCY, and ACTIVITY. Each of these dimensions can be further devided by a series of bi-polar scales which are represented by a pair of opposite adjectives, i.e.,

> "fair-unfair, high-low, kind-cruel, valuable-worthless, christian-anti-christian, and honest-dishonest were all found to correlate tothether .90 or better. Such a cluster represents the operation of a single, general factor in social judgments, obviously here an evaluative factor." (Osgood, et. al., 1957, pp. 24-25).

The second basic assumption is that the three dimensions can be plotted on three mutually perpendicular axes which define as "semantic space" ... Euclidian in character. By using the Euclidian model and these three semantic dimensions, any concept can be plotted in semantic space by knowing where the concept falls along each of the three perpendicular axes (Osgood, et. al., 1957, p. 25-26).

The meaning of a concept is "differentiated when subjects judge a concept against a series of scales, e.g.,

J	Happy	___	:	___	:	X	:	___	Sad
P	Hard	___	:	X	:	___	:	___	Soft
A	Slow	___	:	___	:	X	:	___	Fast

> "each judgment represents a selection among a set of given alternatives and serves to localize the concept as a point in the semantic space ... By semantic differentiation, then we mean the successive allocation of a concept to a point in the multidimensional semantic space by selection from among a set of given scaled semantic alternatives" (Osgood, et. al., 1957, p. 26).

The semantic differential is designed so that each of the dimensions are stated numerically. The scale is assigned a score from one to seven, i.e.,

Concept

Happy ___ : ___ : X : ___ : ___ : ___ : ___ Sad
(1) (2) (3) (4) (5) (6) (7)

The individual responded to the concept as he perceived it by assigning it a number three. In the above example, the respondent could have perceived the concept as: (1) very happy, (2) quite happy, (3) slightly happy, (4) neither happy nor unhappy, (5) slightly unhappy, (6) quite unhappy, (7) very unhappy (Osgood, et. al., 1957, p. 29). Osgood and his associates indicated that the above terms represent more or less equal degrees of intensity between zero and the extreme.

> We have fairly satisfying evidence that our seven-step scales defined by the linguistic quantifiers "extremely," "quite," and "slightly," in both directions from a neutral "meaningless" origin, do yield nearly equal psychological units in the process of judgements (Osgood, et. al., 1957, p. 327).

When evaluating a concept along three dimensions in numerical terms, the result is a point in semantic space which can be plotted along the axes of the three dimensions, which is the same process as plotting a point in Euclidian space, given three coordinates of the point. The point of "meaninglessness" would be where the three axes intersect. Moving or traveling

away from this origin intersect indicates the concept has meaning corresponding to the direction of travel. Distance traveled indicates the degree of meaning in that particular direction.

If as in this study it becomes desirable to compare the meanings of concepts given by an individual before a special program and after the program one would just have to measure the distance between the two points in space which represent the before and after location. If there is a change in the meaning of a concept this can be easily stated, read and plotted in numerical terms.

The bi-polar adjectives (Happy-Sad, Hard-Soft, and Slow-Fast) are examples of the judgmental, potency and activity dimensions. An example of how results might look on a pre- and post-testing with the Semantic Differential:

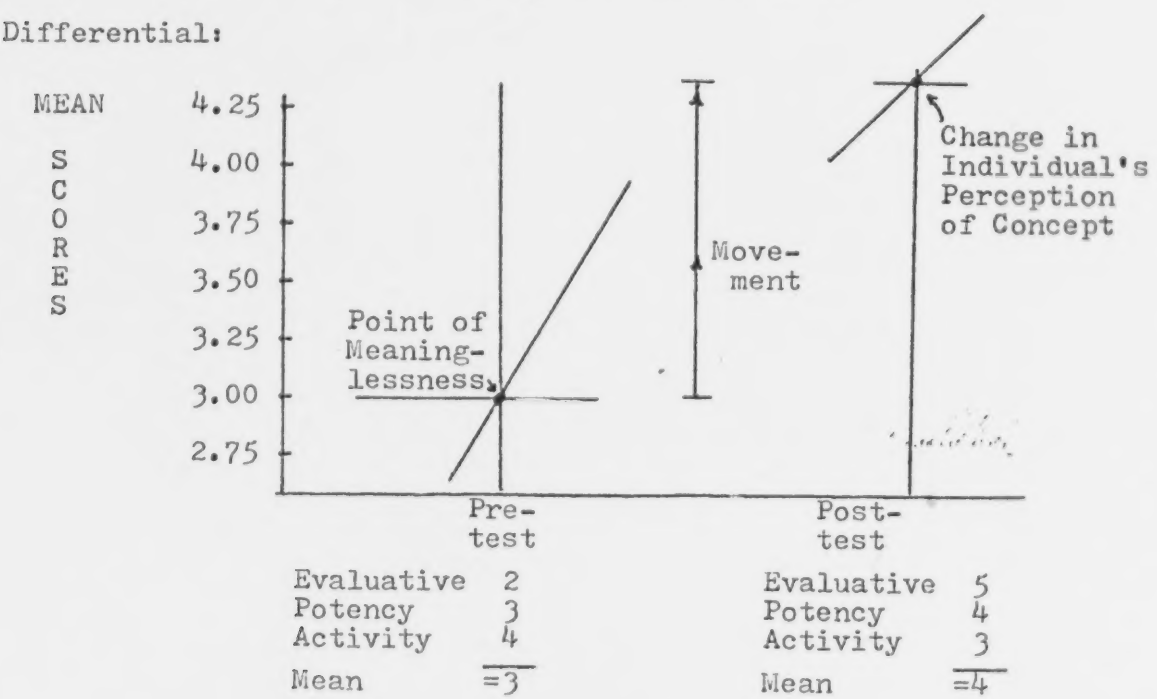

Figure B

In this study, changes in meaning were measured between treatment and control groups in pre- and post-tests. The difference between the meaning assigned by the treatment and control groups were indicated by the distances separating the locations in semantic space of the various groups.

Reliability - The consistency of successive applications of the instrument determines its reliability. The reliability being the dimensions (evaluation, potency, and activity) scores. Osgood, et. al. indicate that item reliability through test re-test correlated across one hundred (100) subjects and forty (40) items, produces a number of 4,000 with a resulting coefficient of .85 (1957, p. 127). Each dimension score is the average of two or more scores representing the same dimension. By using two or more scales the reliability increases. In this study at least three scales were used for each dimension.

Validity - an instrument is said to have validity when it measures what it claims to measure. The Semantic Differential is an instrument for measuring "meaning." Usually validity would be established by correlating the Semantic Differential with another instrument which measures the same thing. Because no other instrument exists for measuring meaning in the exact same way in which the Semantic Differential does, it is impossible to validate it in the usual way. Osgood and his associates looked at the problem from the criterion of "face validity"

(1957, p. 140). He cites examples to establish how self-evident the validity is in most cases:

> An instrument may be said to have "face validity" to the extent that the distinctions it provides correspond with those which would be made by most observers without the aid of the instrument. (Osgood, et. al., 1957, p. 141).
>
> Throughout our work with the semantic differential, we have found no reasons to question the validity of the instrument on the basis of its correspondence with results to be expected from common sense (1957, p. 141).

Brinton (1961, p. 289) reported from his findings that "validity of the semantic differential attitude scales appears to be high, based on high correlations with scores gathered by the traditional Thurstone, Likert, and Guttman types of scales."

Limitations - Three limitations taken into consideration for use in this study were: (1) social desirability of certain responses; (2) concept interaction (Vocational Education might be interesting from one standpoint and uninteresting from another, i.e. hearing about the concept vs. doing the concept); (3) the reaction of the students to the semantic differential (would the instrument work as intended with our student population?).

The Semantic Differential used in this study - Osgood, et. al. (1957, p. 78) state the concepts used should: (1) consider individual differences; (2) have a single, unitary meaning for the individual and (3) be familiar to all the participants. Based on the above criteria

the following concepts were selected in the order they appeared on the pre-test instrument: Vocational Education, Going to College, High Pay (big money), Planning to make a living, Trades (blue collar work), Working with your hands, This "Career Awareness" Institute, Teachers, Your Ability to be Successful, What you will do after you complete school, Guidance Counselors, Your High School, and Choosing a Job.

Each concept was rated against twelve scales-set of bi-polar adjectives. An attempt was made to reduce the social desirability factor and the concept interaction by eliminating scales which might have either a plus or minus stigma. No effort other than the instruction sheet was made to make the test acceptable to the students.

Scales were chosen which have high "loadings," as judged in Thesaurus analysis, Osgood, et. al., 1957, p. 59-61. The scales used in this study were: dirty-clean; sharp-dull; good-bad; strong-weak; rugged-delicate; unpleasant-pleasant; honest-dishonest; passive-active; beautiful-ugly; light-heavy; large-small; slow-fast.

The format of the Semantic Differential for this study was quite simple. Figure 1 is included to show a complete sample page of the instrument. The thirteen concepts judged to be relevant to the study were selected. Each concept appeared on the top of a separate page with the identical set of bi-polar adjectives. The letters before each adjective pair indicate

to which cluster the pair belong. Those scale items with the asterisk (*) are the ones that were reversed on the post-test form. The only idfference between Form A and Form B was the reversing of the bi-polar adjectives #1, 2, 3, 6, 11 and 12.

Table 2

Sample page from the Semantic Differential

WORKING WITH YOUR HANDS

(E)	1.	dirty*	clean
(A)	2.	sharp*	dull
(E)	3.	good*	bad
(P)	4.	strong	weak
(P)	5.	rugged	delicate
(E)	6.	unpleasant*	pleasant
(E)	7.	honest	dishonest
(A)	8.	passive	active
(E)	9.	beautiful	ugly
(P)	10.	light	heavy
(P)	11.	large*	small
(A)	12.	slow*	fast

E - Evaluative or judgmental scales

P - Potency scales

A - Activity scales

* Scale items which were reversed on the post-test form.

Scoring - The initial scoring of the semantic differential used in the study was done by hand. The goal of the initial scoring was to find the factor score for each concept for each person. The seven-step scale was scored on the basis on one through seven, from negative to positive and averages were calculated to the nearest one-hundredth of one percent.

It is readily seen that a semantic differential generates vast amounts of data. Each subject in the four treatment and four control groups made one hundred and fifty-six (156) responses on both pre- and post-tests for a total of 312 responses. By use of a computer, mean dimension scores and standard deviation scores were obtained for both. Each subject, responding to the thirteen concepts, obtained a dimension score for each of the three dimensions. These responses were punched by the computer into cards for processing by an electronic computer for analysis based on BMD04M of the Biomedical Computer Programs package (Dixon, 1967). The statistical procedure was Hotelling's T^2 test which was used to compare the control and treatment groups, for both schools on a pre and post basis, using as dependent variables the three dimensions listed in the semantic differential.

The third and final instrument used in the study was the Classroom Climate Survey. The survey was originally written to help students assess the climate in

their classrooms. The survey was adapted from a questionnaire designed and copyrighted by Dr. George H. Litwin of the Harvard University Graduate School of Business Administration and Dr. Herbert H. Meyer of Behavioral Research Service, General Electric Company.

Paraphrasing Litwin and Stringer's (1968, p. 1) description of ORGANIZATIONAL CLIMATE now becomes

> Classroom Climate refers to a set of measurable characteristics of the school environment, perceived directly or indirectly by students and assumed to influence their motivation and behavior.

Alschuler (1971, p. 76) summarizes the work of Litwin

> Orgainzational Climate is a term to describe and summarize the patterns of expectations and incentive values that impinge on and are created by a group of people that live or work together.
>
> Climates determine motivation and motivated behavior by subtly or blatently defining the "rights" and "wrongs" for each member of the organization. It is the climate of the group that leads different individuals to expect different kinds of rewards or punishments for various kinds of behavior ... Organizational climate molds and shapes the motivation and behavior of every member of a work group through its effect on each member's perception of what is expected of him, and what he will "get" for doing a job a particular way.
>
> Litwin and Stringer (1966) have identified six dimensions of climate, based on their own, and previous research. Variations along these dimensions determine what motives will be aroused. They describe these dimensions for business organizations, but it is clear that the dimensions are relevant to practically any organization, including schools and classrooms.

Psychometric analysis (validity) of the original Organizational Climate survey was achieved on the basis of studies made in a wide variety of organizations including business, government agencies, laboratories and schools (Litwin and Stringer, 1968, pp. 66-92). The instrument used in this study (Classroom Climate Survey) was directly derived from Litwin's Organizational Climate survey by McBER and Company. McBER, while in the process of developing new norms have offered the original psychometric work by Litwin and Stringer (1968) as norms in the use of their survey.

The Classroom Climate Survey used in this study was a series of thirty-three statements. Students were asked to react to the statements by assigning them with a score of +2, +1, -1, -2. The assignment by students of numerical value was based on how they felt about their "school." The numerical assignment was to show how much the student agreed or disagreed with the statement. If the student definitely agreed with the statement he would assign it a plus two (+2), if he agreed only somewhat he would put a plus one (+1) in front of the statement. The negative values are assigned in the same say: disagree somewhat a minus one (-1), and definitely disagree a minus two (-2). The dimensions of the Classroom Climate Survey[1] are as follows:

[1]Test Booklet Scale Definitions and Scoring Key, McBER and Company, 1970, p. 15.

SCALE DEFINITIONS[2]

1. Conformity - the feeling pupils have of class constraints; degree to which they feel there are many rules, procedures, practices to which they have to conform, rather than being able to study and learn as they see fit (6 items, maximum score = 24).

2. Responsibility - the feeling that students have a responsibility delegated to them by the teacher; the degree with which students can study and solve problems on their own without checking with the teacher at every step (5 items, maximum score = 20).

3. Standards - the emphasis that students feel is placed on doing a good job; includes the degree to which they feel challenging goals are set by the teacher and there is continous pressure to improve personal and group performance (5 items, maximum score = 20).

4. Rewards - the degree to which students feel they are being fairly rewarded for good work, rather than only punished when they make a mistake. A climate where stress is primarily on punishment for mistakes tends to develop fear of failure, the tendency to do nothing for fear of punishment. It discourages the student who might otherwise strive for improved performance because he is constantly rewarded for improvement, and doing well (6 items, maximum score = 24).

5. Organizational Clarity - the feeling that the class is pretty well organized rather than disorganized, confused and chaotic. While too much organization leads to feelings of constraint and over-conformity, too little organization prevents effective learning. Students don't know what they are supposed to do. (5 items, maximum score = 20).

6. Team Spirit - the feeling that friendliness characterizes the classroom, that fellow students and the teacher trust one another, and that the class is one which students identify with and are proud to belong to (6 items, maximum score = 24).

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[2]Scoring Key with assigned values for each statement is in the appendix.

The data included 378 score sheets with six subscale scores, i.e., Conformity, Responsibility, Standards, etc. See sample. The data was grouped experimental and control, means for the subscales were determined and profile sheets developed.

The use of the Classroom Climate Survey was expected to reveal if students involved in the treatment would measure a more positive perception of self in relation to their school.

Non-parametric statistical procedures were used with the Classroom Climate Survey. Included were the runs test, the median test and a modification of the two sample Kolmogoroo-Snurnoff test. Each test was used to compare the experimental and control groups data 144 times.

Only scores for control and experimental participants who had both pre-tests and post-tests were used in the analysis of all three instruments.

The rationale for using three instruments in this research were simply:

1. We were trying to measure several variables related to the career development process.
2. We really didn't know which instruments would be sensitive enough to detect change.
3. We felt the significance of the study as a potential curriculum model needed to be verified or discarded.
4. The use of an experimentally based program as a teachable and positive intervention for the individual career development was of interest to the funding agency who sponsored the research and the testing.

The following chapter will discuss the results in relation to the hypotheses formulated. The results of each instrument is reported in the same order that it appears in the Procedures Chapter.

CHAPTER IV

RESULTS

This chapter includes a presentation, analysis and interpretation of data in their relationship to the working hypotheses stated in the first chapter.

Hypothesis I

There will be statistically significant differences between treatment and control groups in vocational decision making attitudes as measured by the Vocational Development Inventory (Crites, 1966).

Increase in vocational decision making attitudes is defined as obtaining higher vocational maturity scores in post test than pre test. The above working hypothesis is restated into the formal statistical null hypotheses:

1. In any randomly selected school there is no difference between the average Crite's Vocational Maturity Score (hereafter CVM) of students exposed to the simulation training in achievement motivation (hereafter treatment) and students who followed the usual curriculum (hereafter control). The alternative hypothesis is that the average of the experimental students is higher than the average of the control students;

2. For each of the two schools studied, the experimental students have an average CVM after exposure equal to that of the control group. The alternative hypothesis is that the experimental students have a higher CVM than the control group;

3. For each of the two schools, the average CVM of the experimental students before exposure to the program equals the average of the control students before the program; and

4. The average CVM of the students in any one of the two schools before the program equals the average CVM of the students in any other of the schools before the program.

Hypothesis I is of primary interest in this study. If it is accepted, there is no relation between the treatment and the consequent vocational maturity. If the hypothesis is rejected in favor of the alternative, then the treatment is associated with a higher average vocational maturity. If hypothesis #I could be tested directly, there would be no need for the subsequent hypotheses. If the four schools differed to begin with (e.g., if hypothesis #4 were rejected), hypothesis #I could not be tested directly because one could not claim that initial school differences did not affect the results. By testing the four sub-hypotheses (vocational and academic) of hypothesis #2 independently, and then combining their results, one would have a valid test of hypothesis #I which is independent of the initial school differences. Hypothesis #3 is a conventional approach for testing that the random assignment to experimental groups and control groups did not influence the final outcomes. Accepting this hypothesis assures the researcher that the eventual differences between experimental and control groups were not caused by initial differences between groups. Hypothesis #4 is a conventional means for testing that the initial differences

do not account for part of the subsequent differences used to test hypothesis #I directly. If hypothesis #4 is accepted, then hypothesis #I can be tested directly. If hypothesis #4 is rejected, then one must test hypothesis #I by testing hypothesis #2.

In order to compare the experimental group with the control group of each school, it was first necessary to do a preliminary F-test of equality of variances prior to each t-test. The results of the F-test were used to determine whether student's or Satterthwaite's t-test was to be utilized (as recommended by Winer, 1962, pp. 33-37).[1]

When hypothesis #3 was confirmed for the schools, the one way of analysis of variance for unequal cell sizes was used to test hypothesis #4. The fourth hypothesis was rejected, which meant that the average CVM of the students (both experimental and control) differed from school to school. Therefore, hypothesis #I could not be studied directly, because if there were significant differences after the program, one could not deny the possibility that they were caused by initial differences.

Hypothesis #2 was tested using the t-test. The [illegible] hypothesis was rejected at the five (.05) percent level

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[1] An analogy to this is when the catcher gives the pitcher instructions for an inside pitch, the pitcher must through observation determine if the batter is left or right handed.

of significance for the two vocational schools and one academic school but the difference was not great enough in the forty schools to be significant. Rejecting null hypothesis #2 meant that students in the experimental program had a higher post test score on the vocational maturity index than the controls, even though both groups started out equal. Claim can be made that exposure to treatment did effect a measured change in all the experimental groups. In the academic school the difference was not great enough to be statistically significant, however, the direction of the change does indicate that the working hypothesis might be true. In no way could the hypothesis be construed to be false. It just could not be conclusively accepted to statistical satisfaction of .05.

Hypothesis #I was tested by combining the individual results for hypothesis #2, and tested with the procedure given on pages 43-45 of Winer.[2] When the independent tests were combined, hypothesis #I could be rejected at much better than the .05 level of significance. Rejecting hypothesis #I indicates that the average vocational maturity score of the experimental group is higher after treatment than the control group.

According to this research there is strong certainty that students exposed to the career awareness program

[2]Winer, B.J., Statistical Principles in Experimental Design. McGraw Hill, New York, 1962.

have greater vocational maturity after the program than students who remain in the regular school curriculum for the same period of time. This claim can be extended to students from any school similar to the four schools in the study.

Tables two through five (2-5) present the statistical computer output for each school. In all four tables the nonsignificant result for the pre-test between groups indicates that the groups were statistically equal before the treatment began. In the post-test for table two (2) the significant result with the appropriate t-test indicates that the groups (treatment and control) were statistically different.

In table three (3) the post test indicated statistically equal groups. The mean scores of the treatment group were higher indicating a positive movement; however, the movement was not enough to be statistically significant.

Table four (4) , the comparison between pre- and post-tests was significant at the 0.022 level indicating a significant statistical difference between the treatment and control groups. The comparison of test scores or variable index (3) was used because of the initial differences in scores between groups in the pre-test. While the difference was not significant in the pre-test, according to the Satterthwaite's t-test, the difference did not allow a simple comparison between pre- and

post-test scores which was found to be statistically significant.

Table five (5) shows significance at the 0.05 level for the post-test indicating a statistical difference between the treatment and control groups. (Text continues on page 73).

SCHOOL A

	Variable Index	# of Cases	Mean Score	Stand. Dev.	Stand. Error	F Value	P Value	Appropriate t-Test T Value	df	P Value	
Pre-	X	22	32.045	4.282	0.913	1.71	0.221	1.55	43	0.065	Non-sig.
	Y	23	29.739	5.594	1.166						
Post-	X	22	33.136	5.267	1.123	1.03	0.937	2.17	43	0.018	Sig.*
	Y	23	29.695	5.355	1.117						
Diff-	X	22	1.090	5.145	1.097	2.00	0.114	0.86	43	0.198	Non-sig.
	Y	23	-0.043	3.637	0.758						

X = Treatment Group

Y = Control Group

* Singificant at 0.018 Level

Table 3

SCHOOL B

	Variable Index	# of Cases	Mean Score	Stand. Dev.	Stand. Error	F Value	P Value	Appropriate t-Test T Value	df	P Value	
Pre-	X	24	31.500	4.501	0.919	1.63	0.240	-0.61	47	0.273	Non-sig.
	Y	25	32.400	5.752	1.150						
Post-	X	24	31.792	4.809	0.982	1.34	0.477	0.13	47	0.449	Non-sig.
	Y	25	31.600	5.575	1.115						
Diff-	X	24	0.291	3.210	0.655	1.89	0.128	0.99	47	o.165	Non-sig.
	Y	25	0.800	4.416	0.883						

X = Treatment Group

Y = Control Group

Table 4

SCHOOL C

	Variable Index	# of Cases	Mean Score	Stand. Dev.	Stand. Error	F Value	P Value	Appropriate t-Test: T Value	df	P Value	
Pre-	X	22	31.818	5.500	1.173	2.90	0.026	-0.85	34.58	0.200	Non-sig.
	Y	19	33.000	3.232	0.741						
Post-	X	22	32.954	6.814	1.453	1.83	0.198	0.64	39	0.263	Non-sig.
	Y	19	31.737	5.031	1.154						
Diff-	X	22	1.136	3.707	0.790	1.06	0.911	2.09	39	0.022*	Sig.
	Y	19	-1.263	3.603	0.827						

X = Treatment Group

Y = Control Group

* Significant at 0.022 Level

Table 5

SCHOOL D

	Variable Index	# of Cases	Mean Score	Stand. Dev.	Stand. Error	F Value	P Value	Appropriate t-Test: T Value	df	P Value	
Pre-	X	20	33.950	5.008	1.120	1.13	0.772	0.95	41	0.175	Non-sig.
	Y	23	32.347	5.331	1.112						
Post-	X	20	34.900	4.388	0.981	3.67	0.004	1.68	34.08	0.050	*Sig.
	Y	23	31.521	8.404	1.752						
Diff-	X	20	1.050	3.426	0.766	4.32	0.001	1.12	32.60	0.270	Non-sig.
	Y	23	-0.826	7.120	1.485						

X = Treatment Group

Y = Control Group

* Significant at 0.05 Level

Table 6

Hypothesis II

There will be statistacally significant differences between treatment and control groups of attitudes towards vocational and educational concepts as measured by the semantic differential.

Every individual can be represented as a point in the semantic differential (SD) space. That is, each individual is represented by three numbers, the evaluation (E) score, the activity (A) score and the potency (P) score. The above working hypothesis is restated into the preliminary hypotheses that were tested.

1. For each of the four schools, the mean of the pre test scores for the treatment group equals the mean of pre test scores for the control group for all three scores simultaneously. The alternative hypothesis was that the average of at least one of the three scores are unequal for the four groups.

2. For each of the four schools, the mean of the post test scores for the treatment group equals the mean of the post test scores for the control group. The alternative was that of inequality for at least one of the three scores.

The hope was that each of the four null hypotheses (one for each school) in (1) would not be rejected while the four in (2) would be rejected. If that were the case, by not rejecting those in (1), we could deny the possibility of initially different groups contributing to the differences observed after the program was run. It intended to study further each school for which null hypothesis in (2) was rejected. Knowing that there were differences would allow us to consider the three

variables individually (evaluation, activity and potency) with post hoc procedures to determine where the differences were and in what direction.

The procedure used to test the hypotheses was that of calculating the E, A and P scores for each individual in the sample given the test instrument, and then testing for equality of means by Hotelling's T^2 test. Hotelling's T^2 test is the appropriate procedure to use when testing for simultaneous equality of means for more than one variable. A necessary requirement in order to use the T^2 test is that the observations be a sample from a multivariate normal population.

According to the theory behind the instrument used to determing the E, A and P scores, each response to an individual poor of adjectives is determined by only two things. Since each pair of adjectives can be classified as one of E, A or P, one of the two factors is the value of that variable for the individual's point in the SD space. The other factor is the individual response to the key word in question. Thus, by the Central Limit Theorem, if this theory applies to the instrument, the E, A and P average responses should be multivariate normal.

The averages of the E, A and P responses were computed for the pre and post tests of 178 students in the study. These were all the students who took the tests both before and after the program. T^2 tests indicated

that hypothesis 1 should not be rejected for any of the schools. They also indicated that hypothesis 2 should not be rejected for any of the schools.

Thus, if the theory behind the instrument applied, one could not associate any difference in the mean SD space point for those exposed to the CA program and those in the normal school curriculum. As an added check on the statistical procedures and calculations, six key concepts were studied in depth using the appropriate statistical procedures. Again there was no associated difference in semantic space for those exposed to the treatment than those in the normal curriculum. Studying the results, it was observed that the average of all the E, A and P scores for any group and for any school was suspicious. This led to a check of the original raw data. It was observed that a fairly common pattern of scoring implied that the instrument used did not work as intended for these students.

Too often students' responses to a pair of adjectives did not change at all with the key word. Some students would choose a pattern that only indicated extreme opinions about the pair of adjectives -- usually marking the extreme positive aspect for almost every adjective pair irrespective of the key word. Others would mark in a regular geometrical pattern, say always in one column or in zigzagging diagonals. This

tendency became more noticeable in the responses to the last half of the key works in both pre and post tests. The entire tendency was more predominant in the pre test.

It is difficult to determine to what to attribute this. Various possibilities might be (a) lack of comprehension, (b) boredom, (c) advancing tiredness, (d) non-cooperativeness or (e) a desire to "psych out" the test and "do well."

Whatever the reason, it was clear that the instrument did not estimate an individual's position in the SD space. As such the tests do not apply to the hypothesis as stated. Further, whatever is being measured by the instrument need not be multivariate normal. Therefore, one cannot use Hotelling's T^2 and thus, one is left in the position of having an instrument that measures something unknown and no way of determining the relationship of the CA program with this unknown.

HYPOTHESIS III

There will be statistically significant differences between treatment and control groups in school perception as measured by the Classroom Climate Scale (Litwin, 1966). The hypotheses tested for the data from the classroom climate scale are restated as follows:

1. There is no statistical difference in the central location of the treatment and control groups for any of the six subscales in either of the schools on the pre-test. The alternative hypothesis is that there is a difference.

2. There is no statistical difference in the central location of the treatment and control groups for any of the six subscales in either of the schools on the post-test. The alternative hypothesis is that the central location for the treatment group is higher than for the control group.

The data used in this analysis were the pre- and post-test scores from 198 students in the Washington, D.C. area. The scores were tabulated and reported by McBER and Company, Cambridge, Massachusetts.

The fact that there are no theoretical reasons to assume that the population (for this instrument) is normal, led to the inspection of 144 histograms. The 144 histograms originated for four (4) schools times six (6) subscales times two groups (treatment and control) times three (pre, post and difference).

The inspection of the histograms confirmed the non-normality of the populations. Therefore, the use of t-test between subgroups or schools was inappropriate.

The appropriate statistical procedures to test the hypotheses were non-parametric ones.

Statistical Procedures

The first non-parametric test used was the runs test. This is a test to determine the location of the scores for the subscales in each group. Had the scores been bunched at the ends for the experimental or the control group the possibility of significance could occur. If the groups had the same average, the scores would probably be intermixed and there would be a large number of runs signifying no difference. Only when the runs are bunched at either end and there are few number of runs can the hypothesis of equal averages be rejected.

The second non-parametric test administered was the medians test. This test determines where the median (of the combined treatment and control groups) falls. With equal groups, the scores of the treatment and control groups would fall 50 percent above the combined median and 50 percent below the combined median. Each group being represented equally on both sides of the median.

The last non-parametric test used was a modification of the two sample Kolmogorov-Smirnoff test. This test was used to compare the data of four groups seventy-two times.

Results

No matter which subscale was studied, no matter which school was studied, no matter whether the pre-tests, the post-tests or the differences were studied, and no matter which of the non-parametric procedures were used, the data showed no difference in terms of central location or central tendency between the treatment and control groups. Thus based on this data, we have failed to reject both hypotheses and cannot claim any difference in school perception in any respect due to the treatment.

The reason for this is clear when we consider figures C - H. The graphs represent the post-test scores minus the pre-test scores. In other words, the graph is the difference between the two scores. I have arbitrarily assigned the top to the treatment group and the bottom to the control group.

Each of the variables (conformity, responsibility, etc.) are charted on separate pages. The four schools are represented by the letters A, B, C, and D. The graphs show for every variable randomly spaced results. Had there been any significance in the tested findings, the graphs would show a concentration of treatment or control group at either end.

Reading the graph (i.e. Conformity School A) two students in the control group had the same score on pre- and post-tests. Only one student in the treatment group

had the same scores on both tests. Moving to the right, three students in the control group had a higher score of one on the variable, while only two students in the treatment group had a higher score of one, and so forth. The left of the zero are minus differences.

A simple eyeball test indicates that the results are formless therefore non-parametrically insignificant. This proved to be the case as both hypotheses failed to be rejected. (Text continues on page 87).

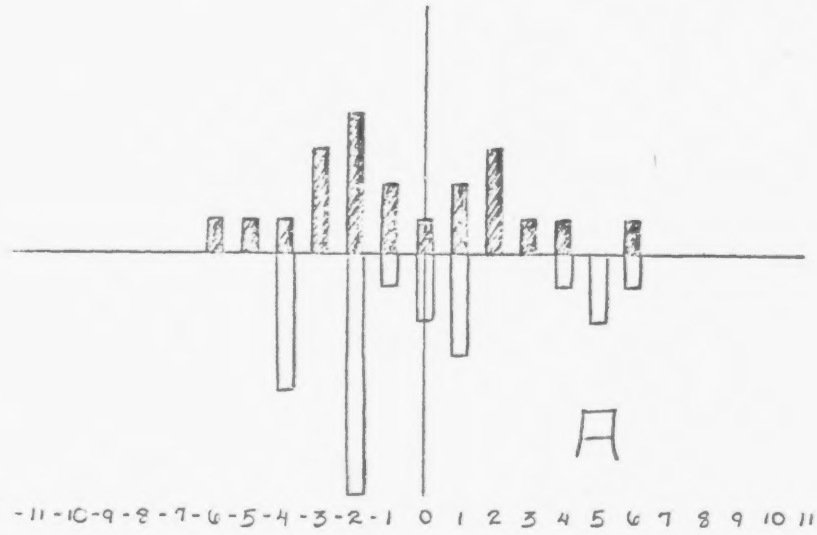
CONFORMITY

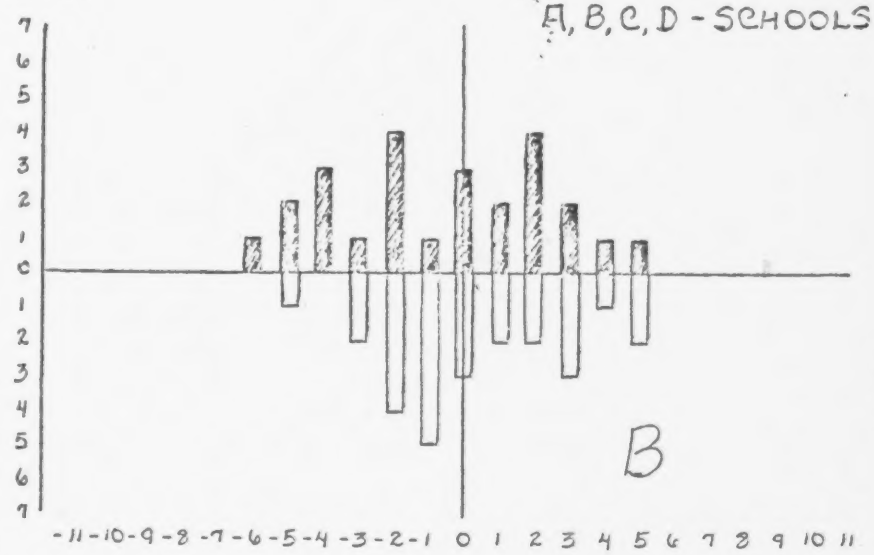
(FIGURE e)

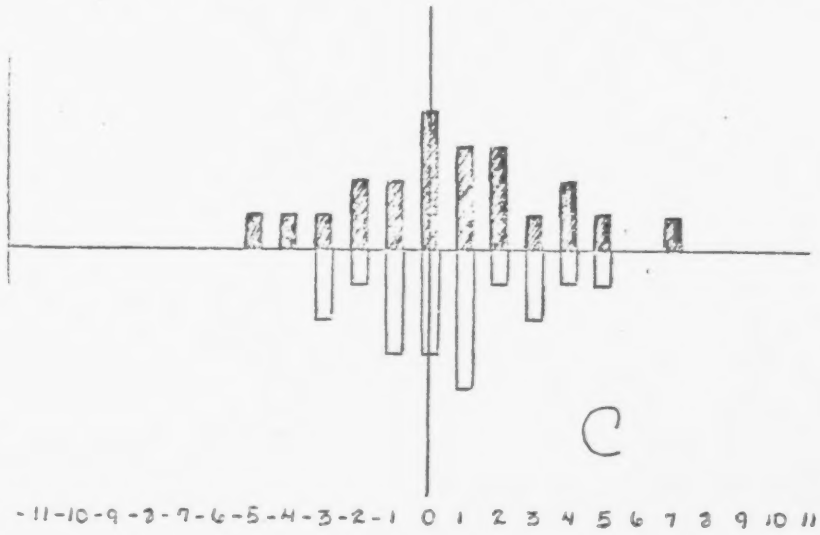
EXPERIMENTAL

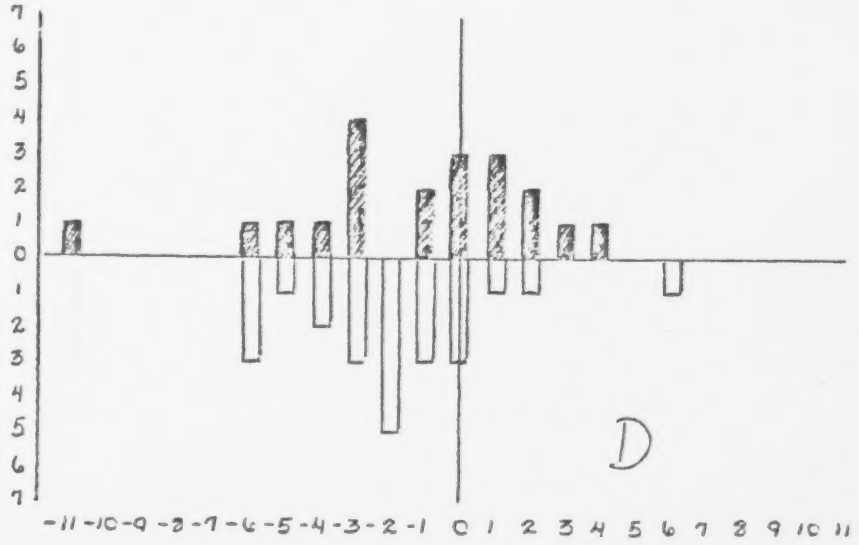
CONTROL

A, B, C, D - SCHOOLS









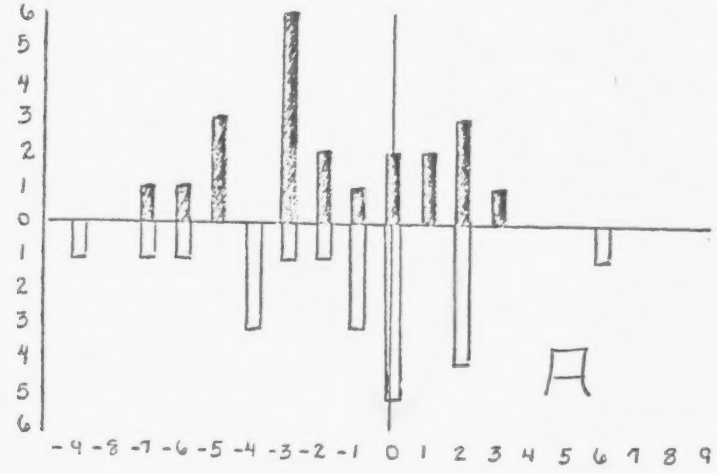
RESPONSIBILITY

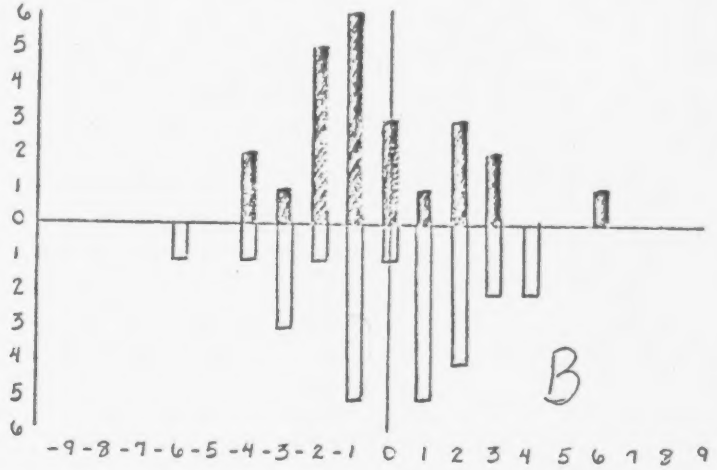
(FIGURE D)

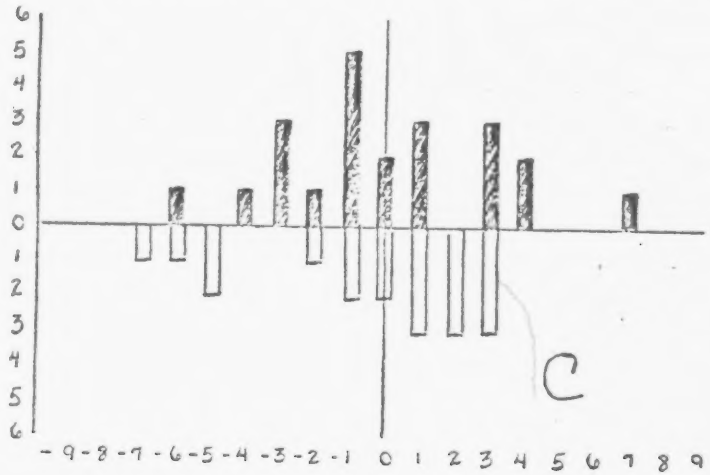
EXPERIMENTAL

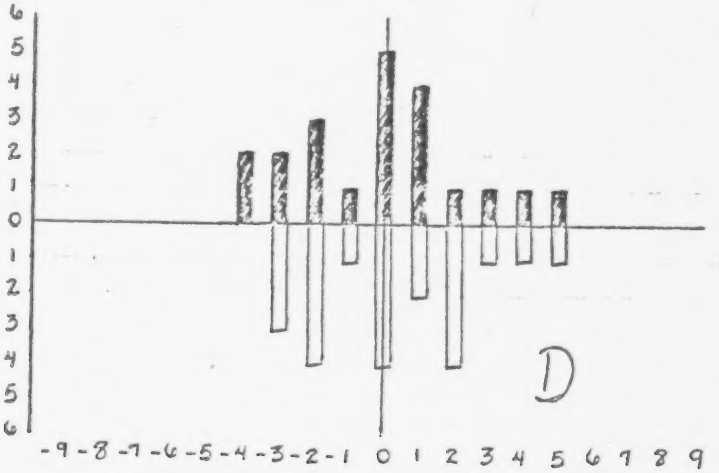
CONTROL

A, B, C, D - SCHOOLS









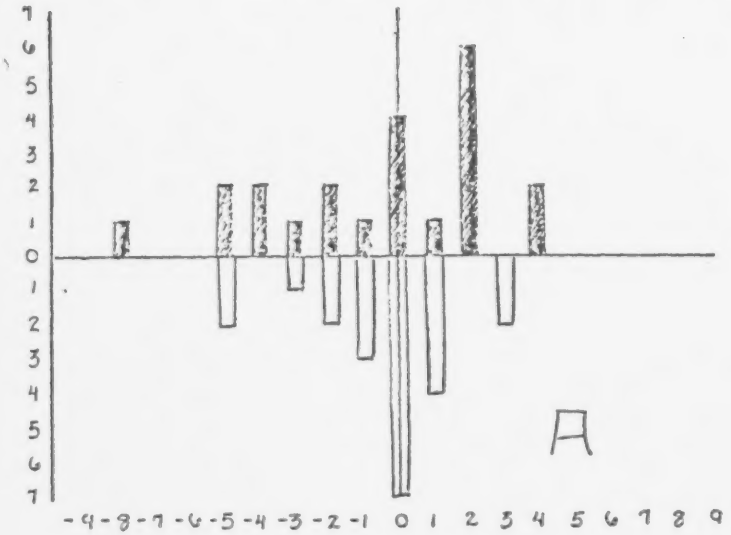
STANDARDS

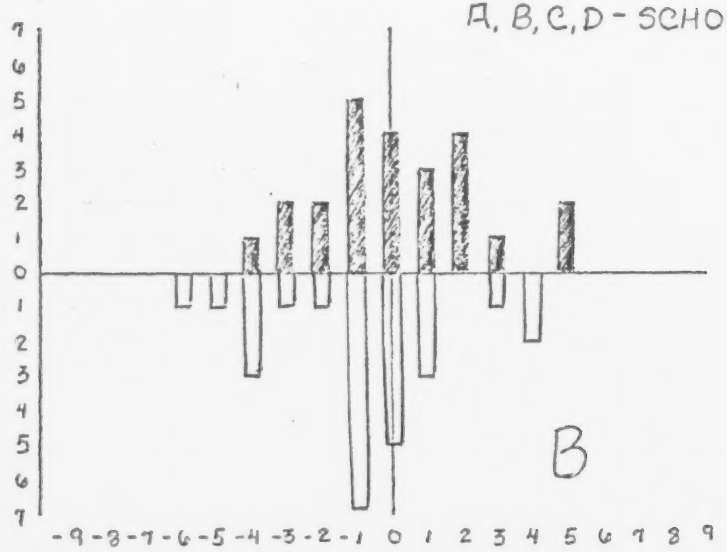
(FIGURE E)

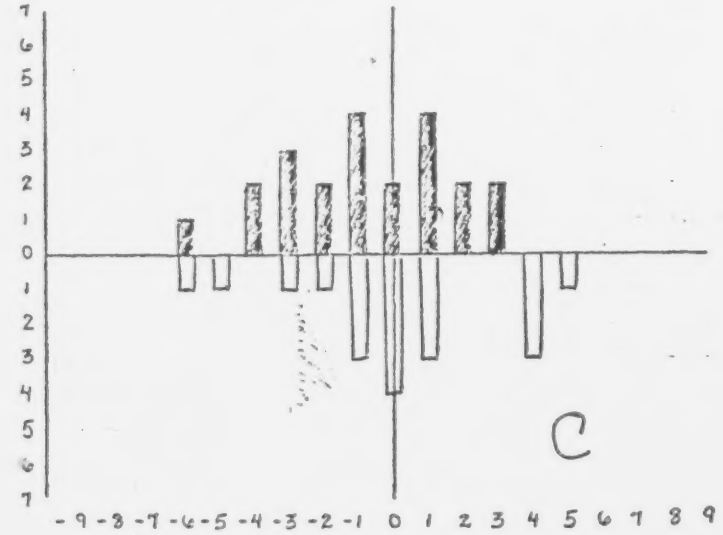
EXPERIMENTAL

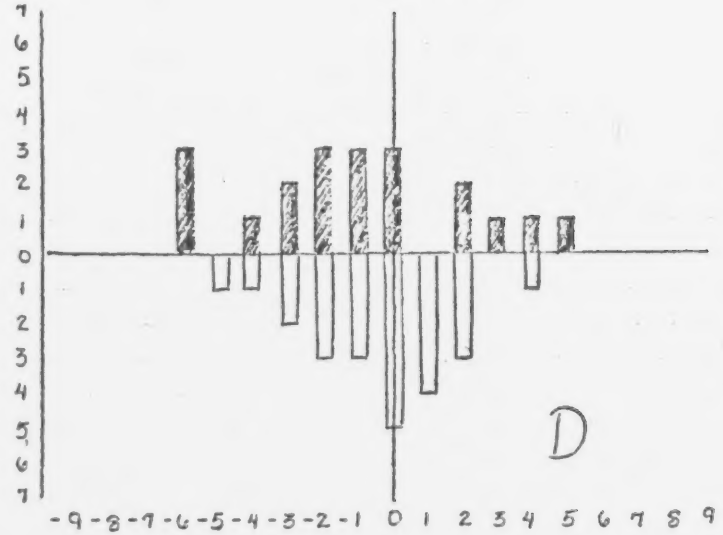
CONTROL

A, B, C, D - SCHOOLS









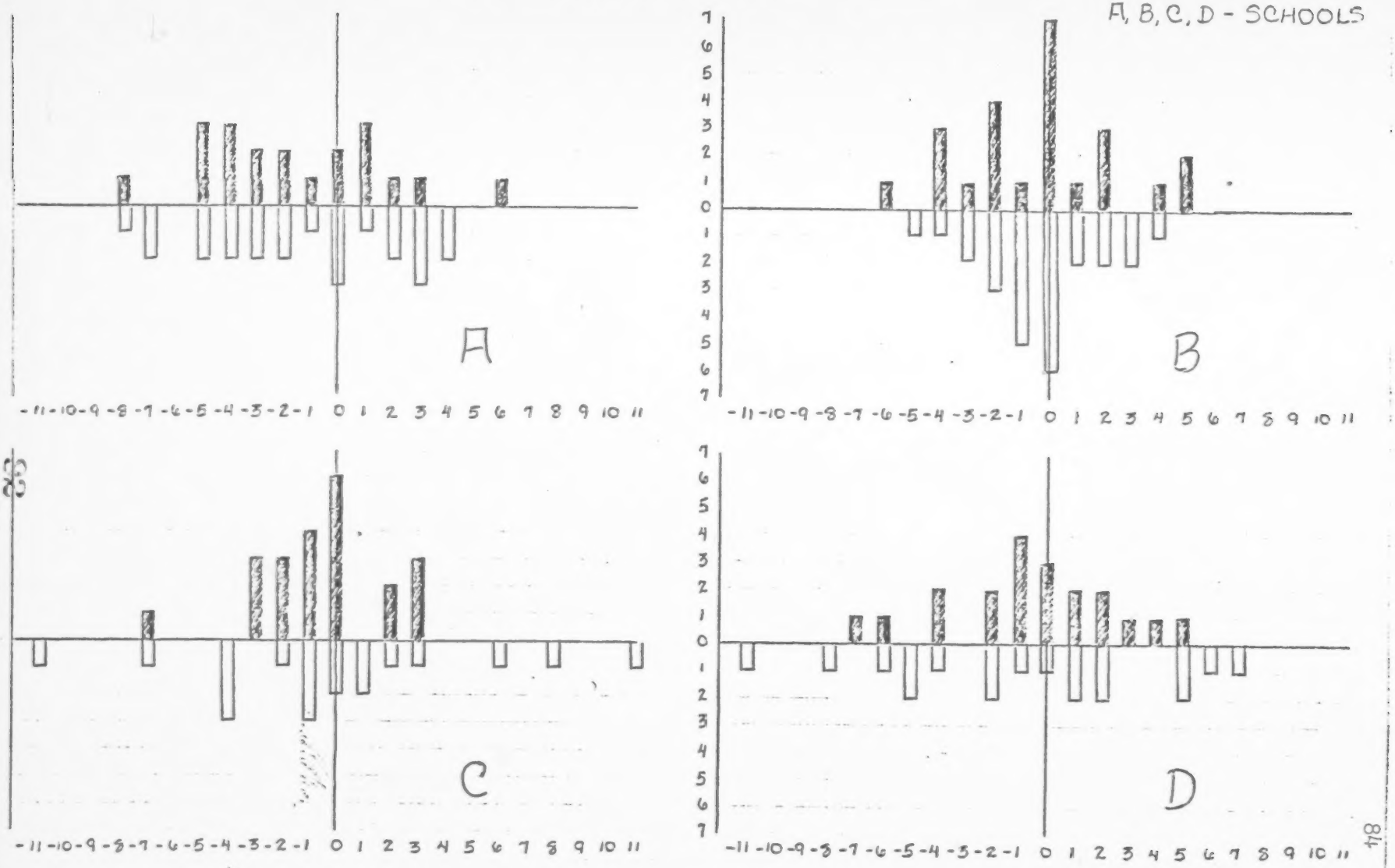
REWARDS

(FIGURE F)

EXPERIMENTAL

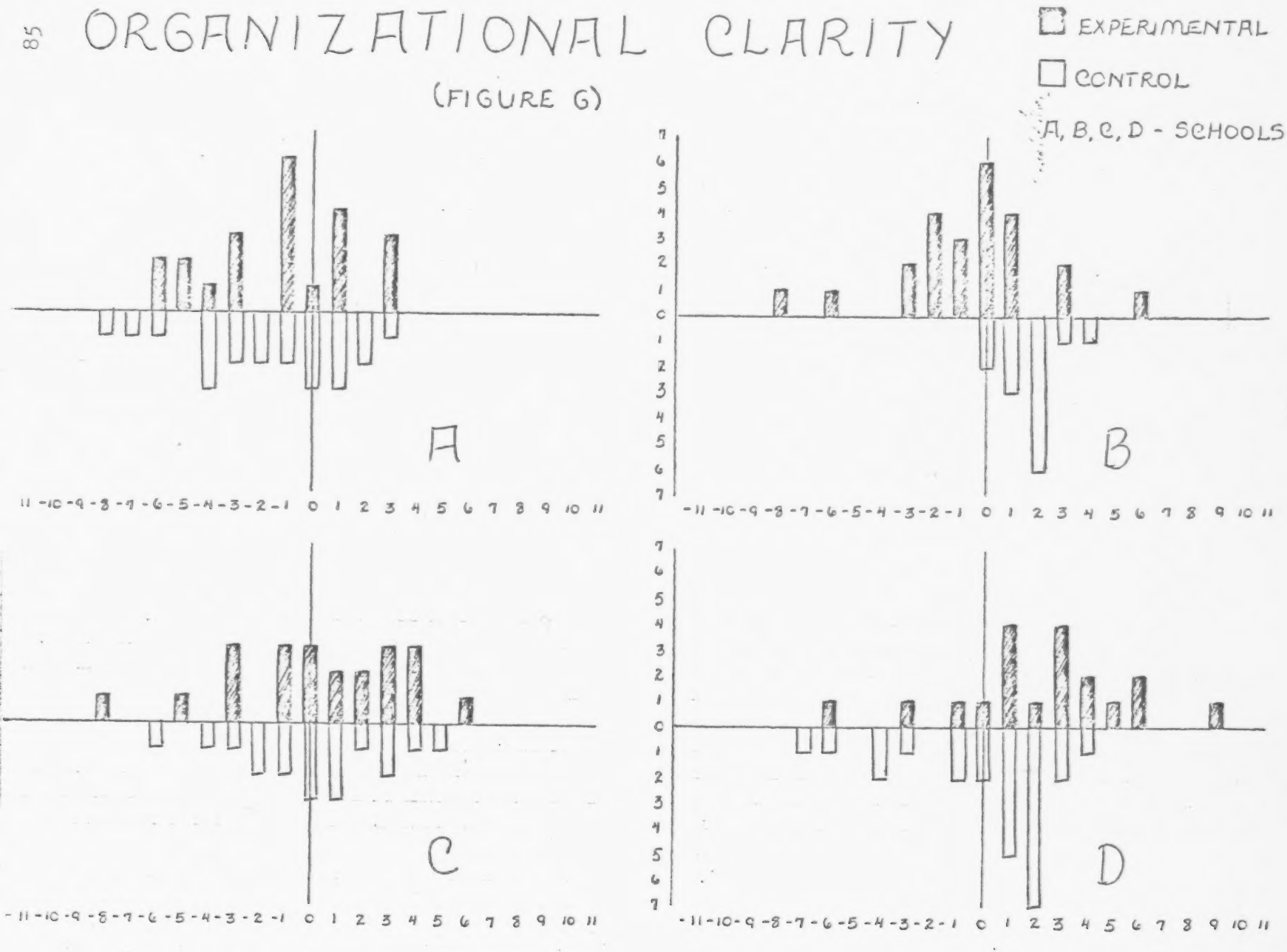
CONTROL

A, B, C, D - SCHOOLS



ORGANIZATIONAL CLARITY

(FIGURE G)



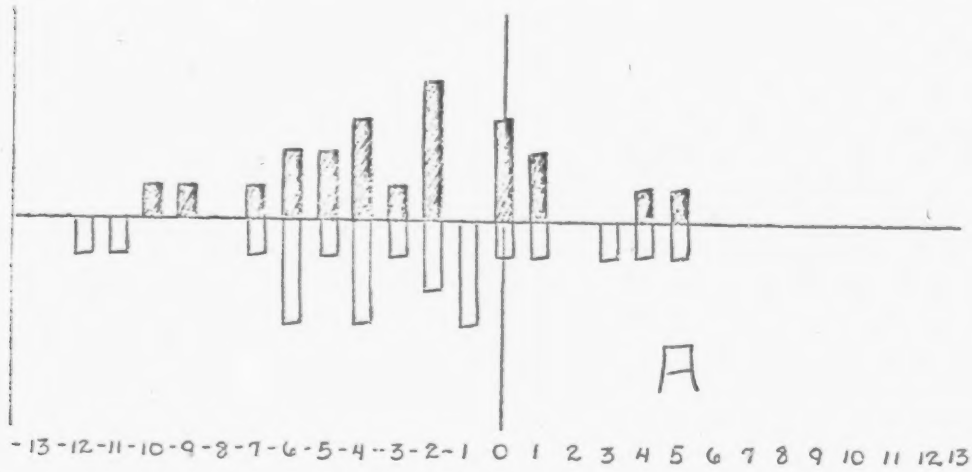
TEAM SPIRIT

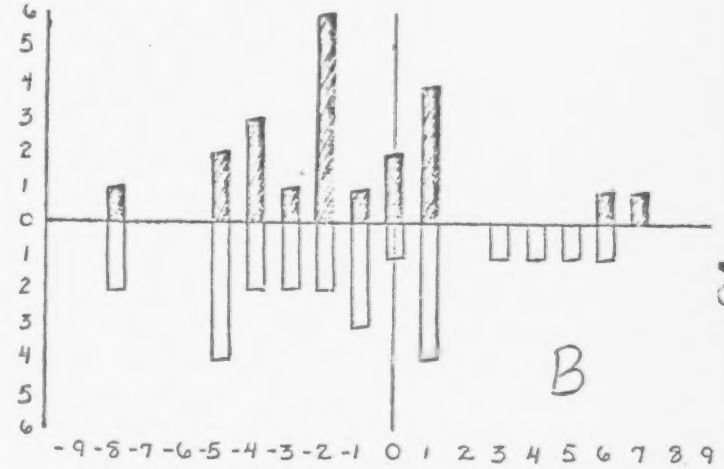
(FIGURE H)

EXPERIMENTAL

CONTROL

A, B, C, D - SCHOOLS





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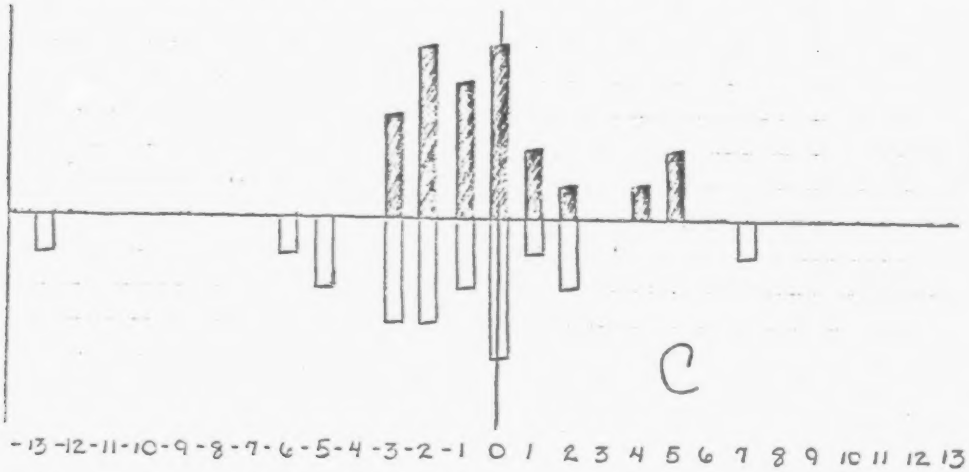

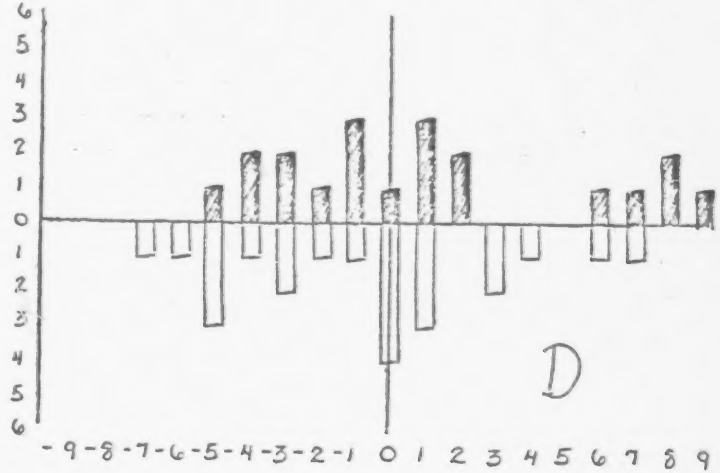

CHAPTER V

DISCUSSION

One of the most significant contributions educational institutions can make to their students is Career Awareness Development. This study has been an attempt to design, implement, and evaluate an approach to this end.

The following chapter contains an overall summary of the study. The introduction, findings, implications and suggestions for future research will be discussed.

Introduction

The value of education is being questioned by youth as they experience the discrepancy between the needs of educational institutions and the needs of the "real world."[1] One of the most vigorous proponents to the reordering of educational priorities is the United States Commissioner of Education, Dr. Sidney P. Marland. He has suggested revising curriculums at all levels to include the concept of Career Education.

> It includes motivation toward a career in early childhood. Adolescent yeras, and sometimes beyond, are spent in orienting the student's talents, aptitudes and interests to information about career possibilities. (New York Times, June 1972, p. 9. Quote by Marland to Manpower Institute and the National Academy of School Executives in May, 1972).

[1]The quotes are the author's. The "real world" is defined as the world of employment and careers.

This study was designed with the Career Education concept in mind in that it is testing the relevance of using a psychological model to teach basic career oriented behaviors. The behaviors include the developing of: (1) self-insight; (2) goals consistent with needs and talents; (3) mechanisms for identifying alternative life and career options; and (4) mechanisms for reviewing, ordering and reality-testing career decision and goals.

Vocational psychologists agree that these behaviors are requisites of vocational maturation, yet have not agreed on a school based intervention process which might be incorporated to operationalize vocational development theory. It is obvious that life styles and vocational competencies do not consist solely of cognitive mastery, however, affective or experiential approaches to these competencies are not usually part of the school curriculum.

McClelland offers achievement motivation research as an approach to stimulate behavioral change within individuals. The research concludes that training can cause participants to feel that they are active agents in determining the direction of their educational and vocational plans. The research also documents positive career changes in participants as a result of the training.

The Career Awareness project incorporated achievement motivation simulations in its experimental curriculum to determine their effect in stimulating vocational maturity (i.e., decision making) and to determine whether an intervention process in career awareness could be conducted in the classroom setting.

Findings

Hypothesis I

"Subjects receiving simulation training in achievement motivation will evidence significantly more mature vocational decision making attitudes than subjects not receiving the training."

Accepting the above hypothesis means that students exposed to the career awareness program experienced a statistically significant increase over the controls in vocational maturity as measured by the Crites instrument. This Crites inventory purports to be measuring choice and decision factors relating to vocations. Factors such as: (1) involvement in the choice process; (2) orientation toward work; (3) independence in decision making; (4) preference for choice factors; and (5) conceptions of the choice process, are all processes which have relied on the passage of time for their development.

According to the findings of this research, vocational maturity was enhanced through the use of

achievement motivation simulations in all of the schools and theoretically could be as effective in any urban school similar to those in the study.

Hypothesis II

"Subjects receiving simulation training will achieve a more positive change in attitudes toward education and vocational concepts as measured by the Semantic Differential (Osgood, 1957) than subjects not receiving simulation training."

This hypothesis was not accepted which meant that one could not associate any differences in semantic differential space between subjects exposed to the training program and subjects in the regular curriculum. It was noted that the semantic differential scores were suspicious in that student response didn't change regardless of the key concept and that there was a pattern of responses in many cases. It is felt that the semantic differential instrument did not evaluate SD space as intended, leaving the hypothesis unanswerable.

Hypothesis III

"Subjects receiving treatment will perceive or evaluate their school climate more positively as measured by the Classroom Climate Scale (Litwin, 1969)."

This hypothesis was rejected as there were no detectable statistical evidence that treatment had any effect on school climate as measured by this instrument.

Implications

The major implication of this study seems to be that students can internalize the process of vocational decision making by direct educational methods. Ancillary to vocational decision making skills are abilities to: (1) appraise and reappraise values; (2) develop and modify attitudes toward oneself, others, and career-relevant aspects (e.g., work persistence, success); (3) become able to give and receive feedback constructively; (4) become more creative and more proficient in problem-solving; and (5) become more aware of aspirations in terms of realistic talent.

A second implication is that the study had an effect on the thought process in relationship to attitudes. The movement in a positive direction of attitudes toward vocations gives rise to many interesting speculations. The process of developing interest, commitment, and motivation are just a few. McClelland contends that it is through the thought processes beginning with fantasy that actions or decisions come about. Career development curriculums continually refer to the behaviors, such as career attitudes, taking responsibility and decision making. Unfortunately the delivery system for these behaviors is vague. Evidence that a psychologically based career curriculum can deliver these behaviors has been demonstrated in this study.

A third implication of this study related to the role of simulations. The career awareness concepts were introduced through the use of simulations. While there was no attempt to evaluate each simulation in relation to impact, significant results in the study indicate that simulations were effective. The implications for considering the use of simulations as teaching tools are: (1) they could provide for the affective as well as the cognitive processes of learning; (2) they can be content oriented; and (3) their cost replication, evaluation, scheduling and experimental possibilities are unlimited.

A fourth implication of this study is that the intervention of a career awareness program can effect positive vocational maturational change at the higher grade levels. We had previously thought that vocational maturity only came with the passage of time. It should be possible to initiate an intervention model at most any grade level.

A final but certainly a vital implication this study indicates is that a career awareness curriculum can incorporate the psychological, vocational, and academic features and be successfully employed as a model for any number of schools. Career education can be a formal approach to teach students the attitudes, motivations, value clarification processes, goal clarification and self-evaluation which are all critical to mature vocational decision making.

Assessment of the Study

One of the strengths of this study was its comprehensive design that allowed for the use of three instruments to test the three working hypotheses. Another was its size and scope, in that the study included a sample size of two hundred (200) students from four inner-city high schools in Washington, D.C. The selection processes of the subjects and randomization of the groups also added greatly to the generalizability of the study. Permission to work with the experimental groups for a full week away from their particular schools also added greatly to the treatment phase.

Students seemed to enjoy the simulations and counselors reported that student attendence for the full week far exceeded their usual attendence for a full week at their respective schools. Feedback from counselors and teachers at the respective schools indicates students felt the program was worthwhile.

One of the weaknesses in this study was the testing restraints encountered. All instruments were given at the same time. The testing time took approximately two hours and students seemed to get bored toward the end of testing. Another weakness was in the research design to test the effectiveness of the video confrontation. The dichotomy of schools make comparison difficult because one would not know to what to attribute any difference. Another weakness was the design of the Semantic Differential

instrument. Perhaps there should have been fewer key words to evaluate and fewer bi-polar adjectives to respond to.

Recommendations

It is quite unique and courageous for a school system to engage in research which requires students to be away from their busy school programs for a whole week. It is even more unusual that the nature of the treatment would be psychologically based. Yet the search for viable career curriculum was considered worth the expenditure. With this trend in mind the following recommendations for conducting further research are offered:

1. Research should be initiated to test the effectiveness of training counselors and teachers in using simulations to teach career education.

2. Specifically this research should be replicated to determine which of the many factors contribute to the career development effect (i.e., trainers, simulations).

3. Research should be conducted on the use of simulations. The use of affective psychological models in the learning process should also be investigated.

4. Research on achievement motivation and its relationship to career development should be studied. Will the teaching of achievement thinking be as effective as the omnibus approach used in this study.

5. Follow-up studies (immediate and long term) on the subjects in this study needs to be done to determine residual and long term effects. Did the treatment group make different decisions in their school plans, work plans, or life plans? How do they compare in school related activities to the control group? Are they doing anything differently?

6. Research on the specific behaviors considered positive by vocational development theory should be investigated. The research should attempt to not only identify but design experimental programs to produce these behaviors. It should also follow-up studies to determine their worth.

7. Further research of the type reported here is suggested with turned-off students to determine if and to what extent their goals can be incorporated within a school program.

8. Orientation programs using similar procedures should be incorporated at all school and industry levels and the results should be studied to determine if some of the techniques might have a joining up effect. In other words, do these procedures produce affiliation feelings toward one's organization?

While the results of this research are encouraging, caution is urged until more validation can be made. The promise of equipping students with the psychological tools and skills to realize their career dreams are worthy research goals.

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APPENDIX E

CLASSROOM CLIMATE SURVEY

School: Springarn High School

City: Washington, D. C.

POST TEST

Experimental Group (N= 25)

	CONFORMITY	RESPONSIBILITY	STANDARDS	REWARDS	ORGANIZAT'L CLARITY	TEAM SPIRIT
Totals	378.6	365.5	347.0	406.0	304.0	372.0
Means	15.14	14.62	13.88	16.24	12.16	14.88

Control Group (N= 25)

	CONFORMITY	RESPONSIBILITY	STANDARDS	REWARDS	ORGANIZAT'L CLARITY	TEAM SPIRIT
Totals	395.0	376.0	320.0	440.0	325.0	380.0
Means	15.80	15.04	12.80	17.60	13.00	15.20

CLASSROOM CLIMATE SURVEY

School: Springarn High School

City: Washington, D. C.

PRETEST

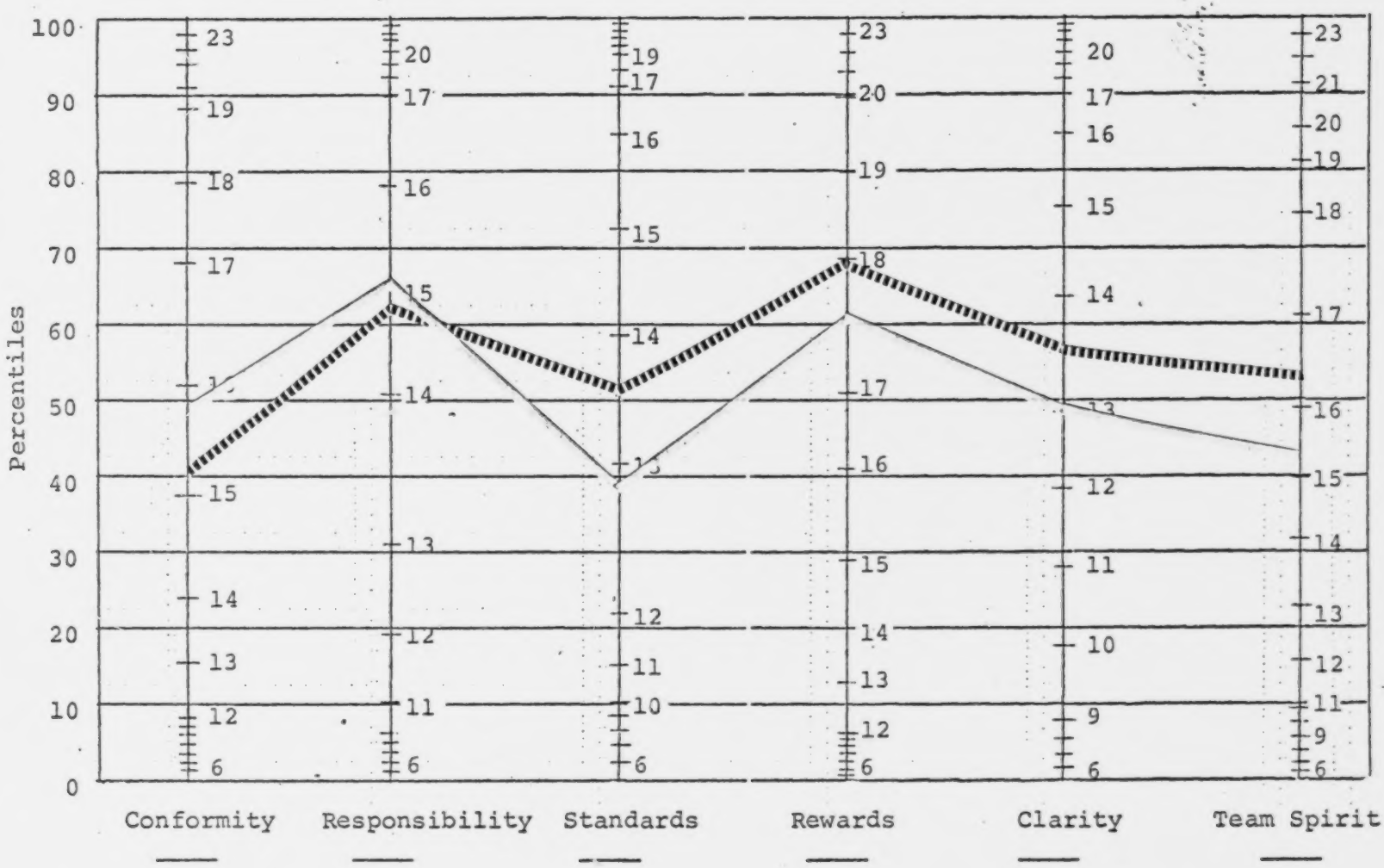
Experimental Group (N=25)

	CONFORMITY	RESPONSIBILITY	STANDARDS	REWARDS	ORGANIZAT'L CLARITY	TEAM SPIRIT
Totals	390.0	370.0	345.0	412.0	321.5	396.0
Means	15.60	14.80	13.80	16.48	12.86	15.84

Control Group (N= 25)

	CONFORMITY	RESPONSIBILITY	STANDARDS	REWARDS	ORGANIZAT'L CLARITY	TEAM SPIRIT
Totals	380.0	374.6	340.5	450.0	337.0	407.6
Means	15.20	14.98	13.62	18.00	13.48	16.30

PROFILE SHEET FOR CLASSROOM CLIMATE SURVEY



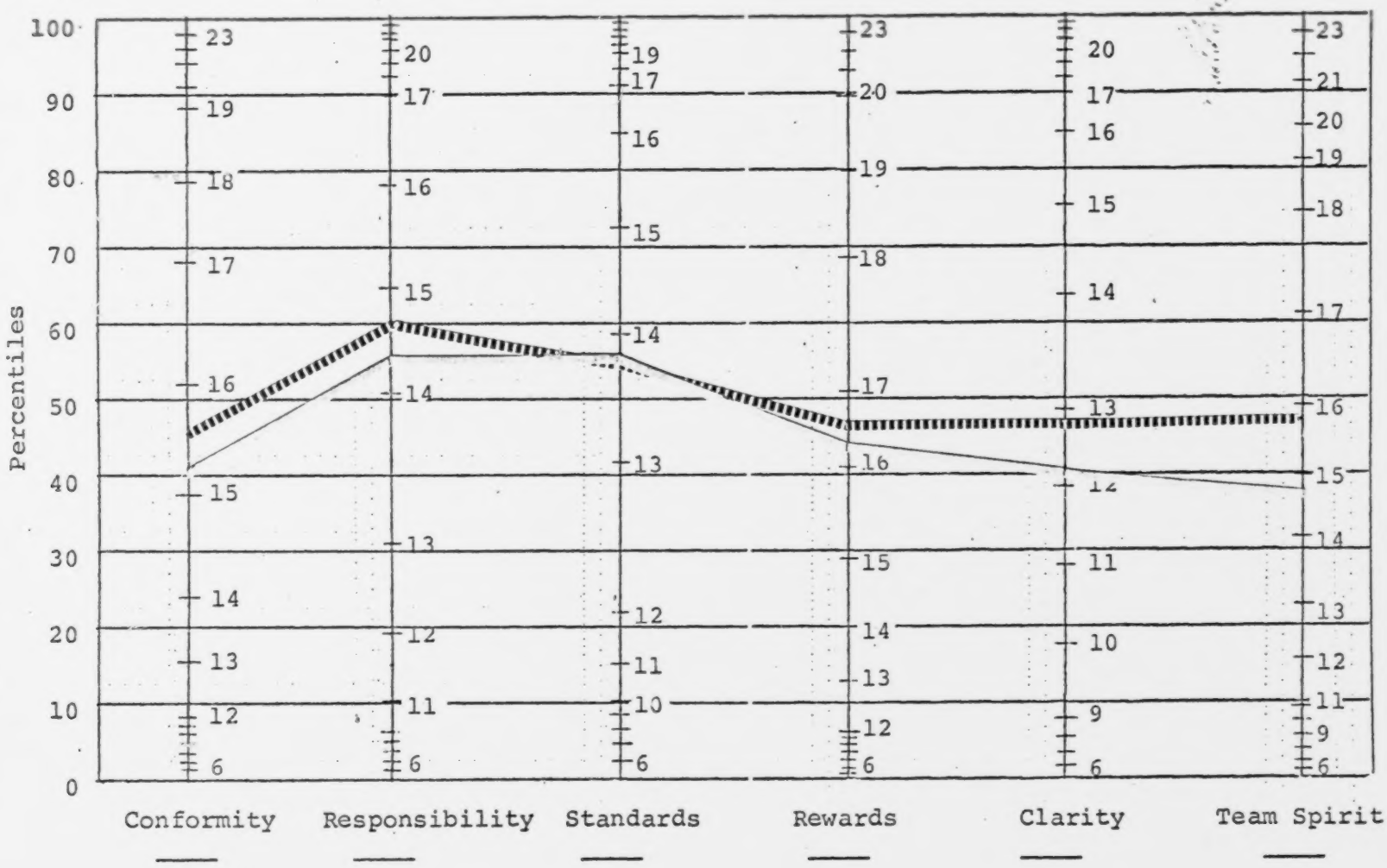
Springarn High School
Washington, D. C.

CONTROL GROUP

PRETEST

POST-TEST

PROFILE SHEET FOR CLASSROOM CLIMATE SURVEY



Springarn High School
Washington, D. C.

EXPERIMENTAL GROUP

PRETEST
POST-TEST

CLASSROOM CLIMATE SURVEY

School: M. M. Washington Vocational School

City: Washington, D. C.

POST TEST

Experimental Group (N=20)

	CONFORMITY	RESPONSIBILITY	STANDARDS	REWARDS	ORGANIZAT'L CLARITY	TEAM SPIRIT
Totals	323.0	295.0	277.0	326.0	283.0	354.0
Means	16.15	14.75	13.85	16.30	14.15	17.70

Control Group (N= 23)

	CONFORMITY	RESPONSIBILITY	STANDARDS	REWARDS	ORGANIZAT'L CLARITY	TEAM SPIRIT
Totals	361.0	317.0	317.0	362.0	288.0	318.0
Means	15.70	13.78	13.78	15.74	12.52	13.83

CLASSROOM CLIMATE SURVEY

School: M. M. Washington Vocational School

City: Washington, D.C.

PRETEST

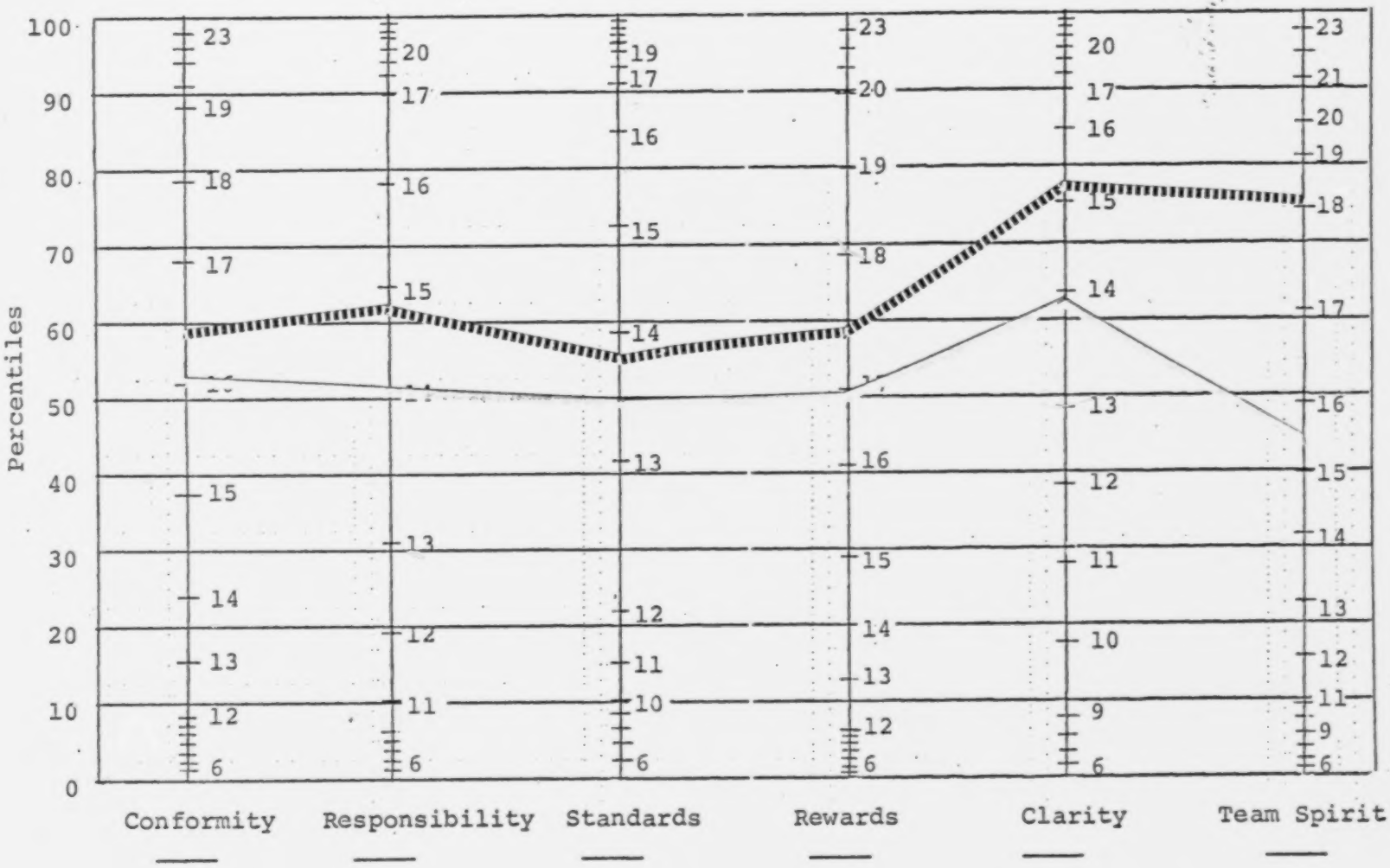
Experimental Group (N=23)

	CONFORMITY	RESPONSIBILITY	STANDARDS	REWARDS	ORGANIZAT'L CLARITY	TEAM SPIRIT
Totals	388.0	326.0	337.0	386.0	282.0	374.0
Means	16.87	14.17	14.65	16.78	12.26	16.26

Control Group (N= 25)

	CONFORMITY	RESPONSIBILITY	STANDARDS	REWARDS	ORGANIZAT'L CLARITY	TEAM SPIRIT
Totals	439.8	350.0	356.0	407.0	298.0	351.0
Means	17.59	14.00	14.24	16.28	11.92	14.04

PROFILE SHEET FOR CLASSROOM CLIMATE SURVEY



Phelps Vocational High School
Washington, D. C.

CONTROL GROUP

PRETEST

POST-TEST

CLASSROOM CLIMATE SURVEY

School: Dunbar High School

City: Washington, D. C.

PRETEST

Experimental Group (N= 25)

	CONFORMITY	RESPONSIBILITY	STANDARDS	REWARDS	ORGANIZAT'L CLARITY	TEAM SPIRIT
Totals	418.6	367.0	368.8	437.0	355.0	406.0
Means	16.74	14.68	14.75	17.48	14.20	16.24

Control Group (N= 25)

	CONFORMITY	RESPONSIBILITY	STANDARDS	REWARDS	ORGANIZAT'L CLARITY	TEAM SPIRIT
Totals	402.2	343.0	346.0	410.0	326.0	411.0
Means	16.09	13.72	13.84	16.40	13.04	16.44

CLASSROOM CLIMATE SURVEY

School: Phelps Vocational High School

City: Washington, D. C.

PRETEST

Experimental Group (N= 24)

	CONFORMITY	RESPONSIBILITY	STANDARDS	REWARDS	ORGANIZAT'L CLARITY	TEAM SPIRIT
Totals	406.0	370.4	335.6	432.9	372.5	421.9
Means	16.92	15.43	13.98	18.04	15.52	17.58

Control Group (N=24)

	CONFORMITY	RESPONSIBILITY	STANDARDS	REWARDS	ORGANIZAT'L CLARITY	TEAM SPIRIT
Totals	394.4	356.0	332.0	418.0	365.0	434.0
Means	16.43	14.83	13.83	17.42	15.20	18.08

CLASSROOM CLIMATE SURVEY

School: Phelps Vocational High School

City: Washington, D. C.

POST TEST

Experimental Group (N=24)

	CONFORMITY	RESPONSIBILITY	STANDARDS	REWARDS	ORGANIZAT'L CLARITY	TEAM SPIRIT
Totals	406.0	324.8	324.0	390.0	341.8	359.0
Means	16.92	13.53	13.50	16.25	14.24	14.96

Control Group (N= 23)

	CONFORMITY	RESPONSIBILITY	STANDARDS	REWARDS	ORGANIZAT'L CLARITY	TEAM SPIRIT
Totals	368.0	322.0	310.0	389.6	320.8	354.0
Means	16.00	14.00	13.48	16.94	13.95	15.39

CLASSROOM CLIMATE SURVEY

School: Dunbar High school

City: Washington, D. C.

POST TEST

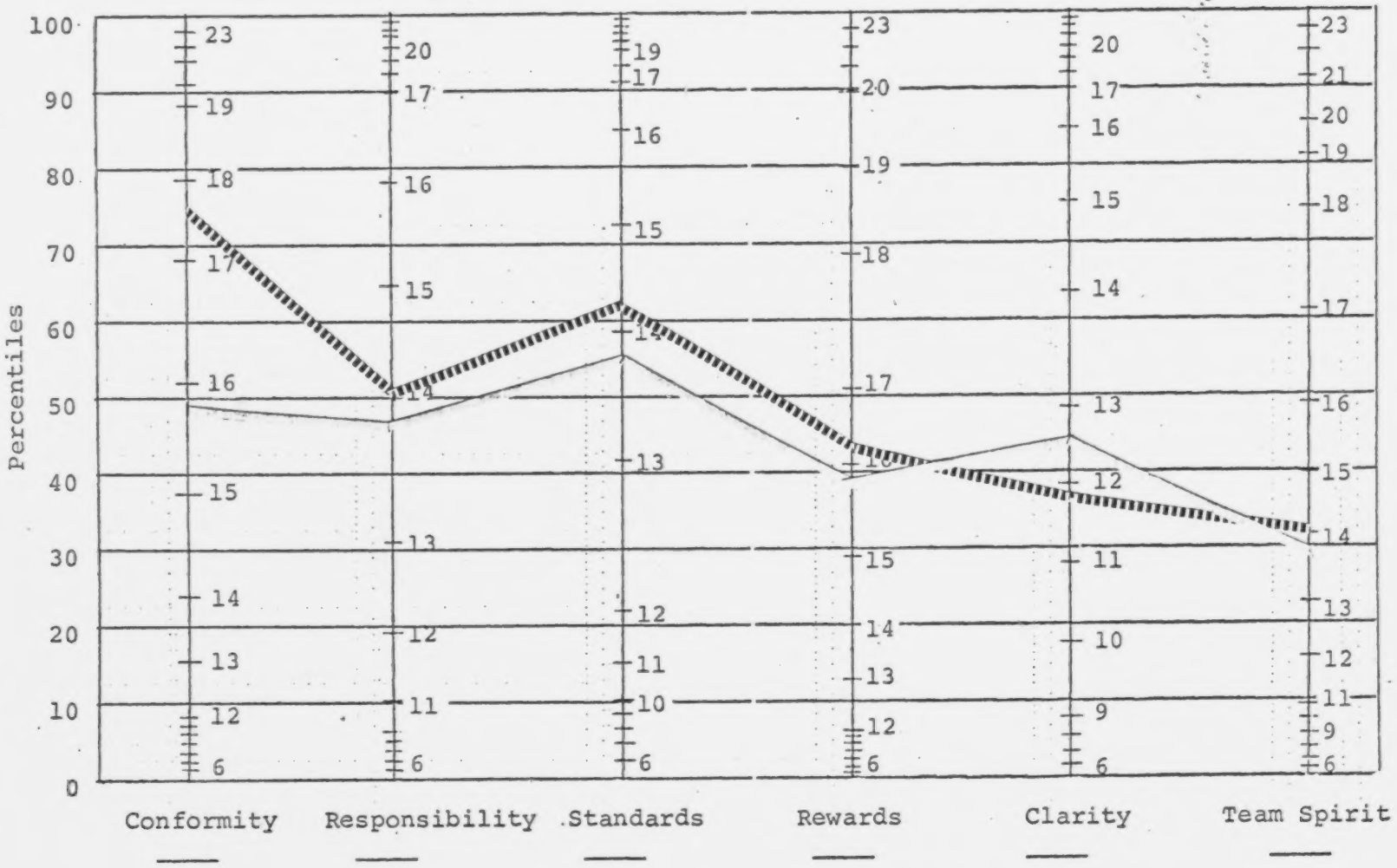
Experimental Group (N= 22)

	CONFORMITY	RESPONSIBILITY	STANDARDS	REWARDS	ORGANIZAT'L CLARITY	TEAM SPIRIT
Totals	375.0	321.0	307.0	365.0	318.0	358.0
Means	17.05	14.59	13.95	16.59	14.45	16.27

Control Group (N= 20)

	CONFORMITY	RESPONSIBILITY	STANDARDS	REWARDS	ORGANIZAT'L CLARITY	TEAM SPIRIT
Totals	332.6	272.0	282.0	327.0	262.0	299.0
Means	16.63	13.60	14.10	16.35	13.10	14.95

PROFILE SHEET FOR CLASSROOM CLIMATE SURVEY



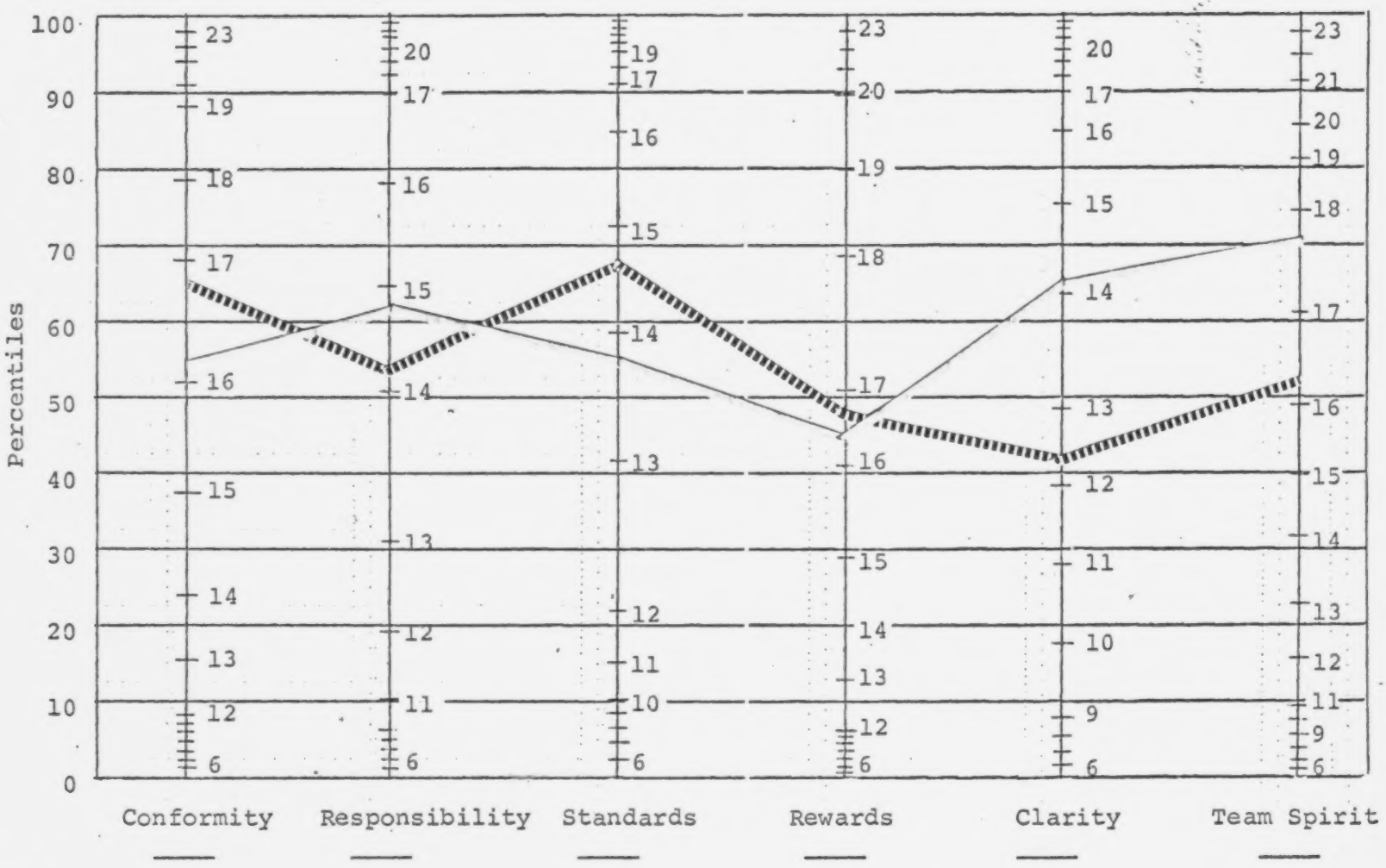
M. M. Washington Vocational School
Washington, D. C.

PRETEST

POST-TEST

CONTROL GROUP

PROFILE SHEET FOR CLASSROOM CLIMATE SURVEY



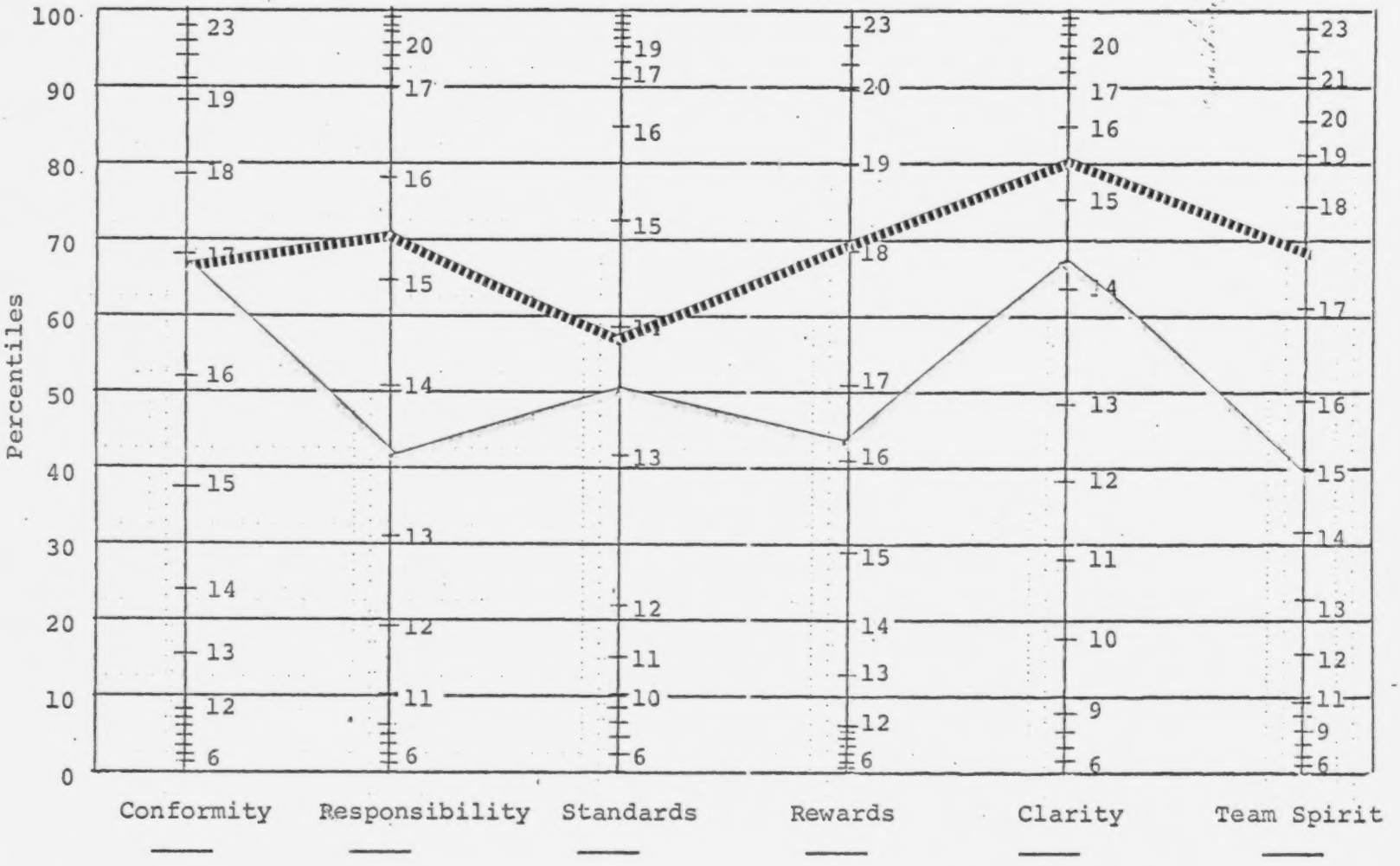
M. M. Washington Vocational School
Washington, D. C.

EXPERIMENTAL GROUP

PRETEST

POST-TEST

PROFILE SHEET FOR CLASSROOM CLIMATE SURVEY



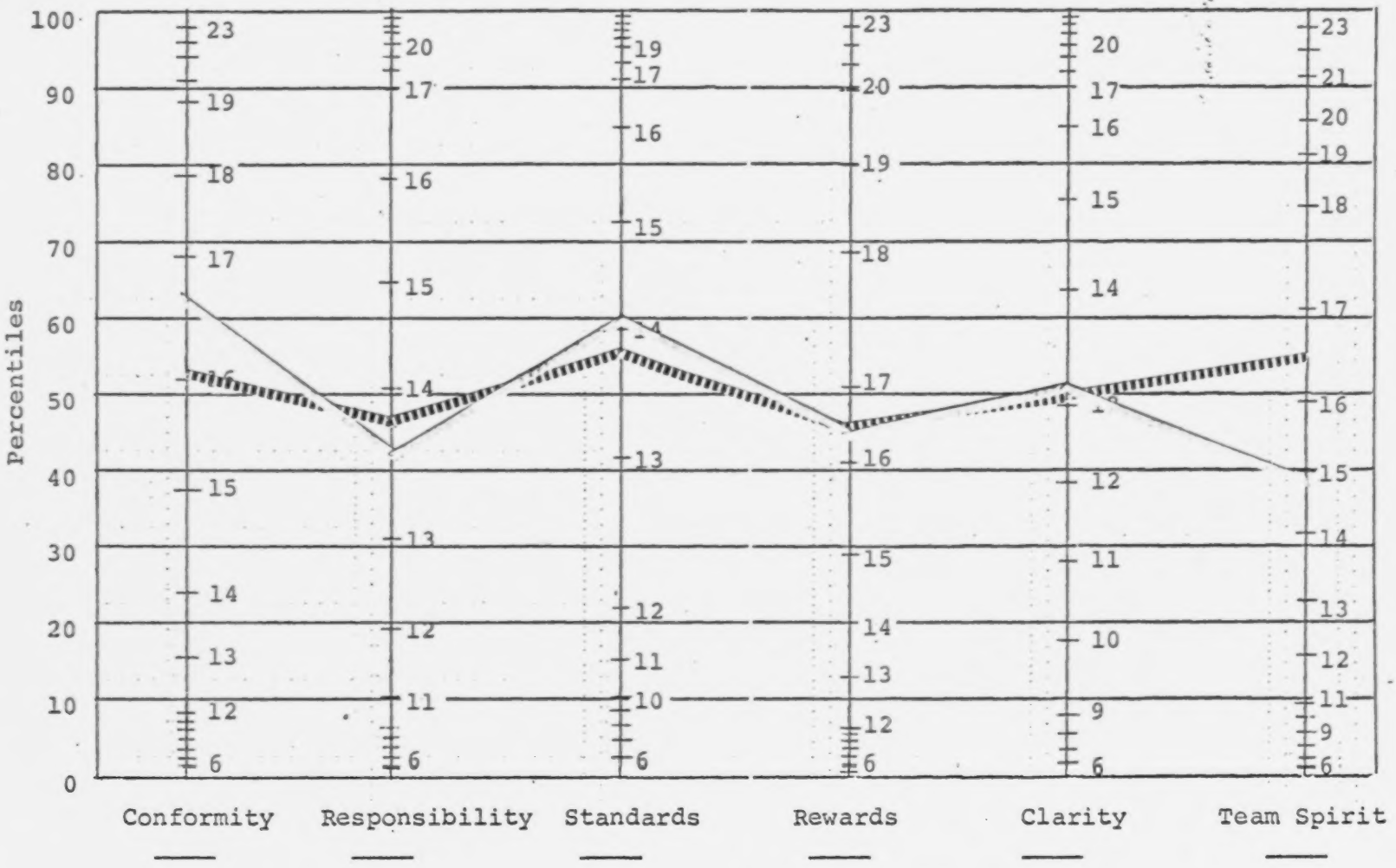
Phelps Vocational High School
Washington, D. C.

EXPERIMENTAL GROUP

PRETEST

POST-TEST

PROFILE SHEET FOR CLASSROOM CLIMATE SURVEY



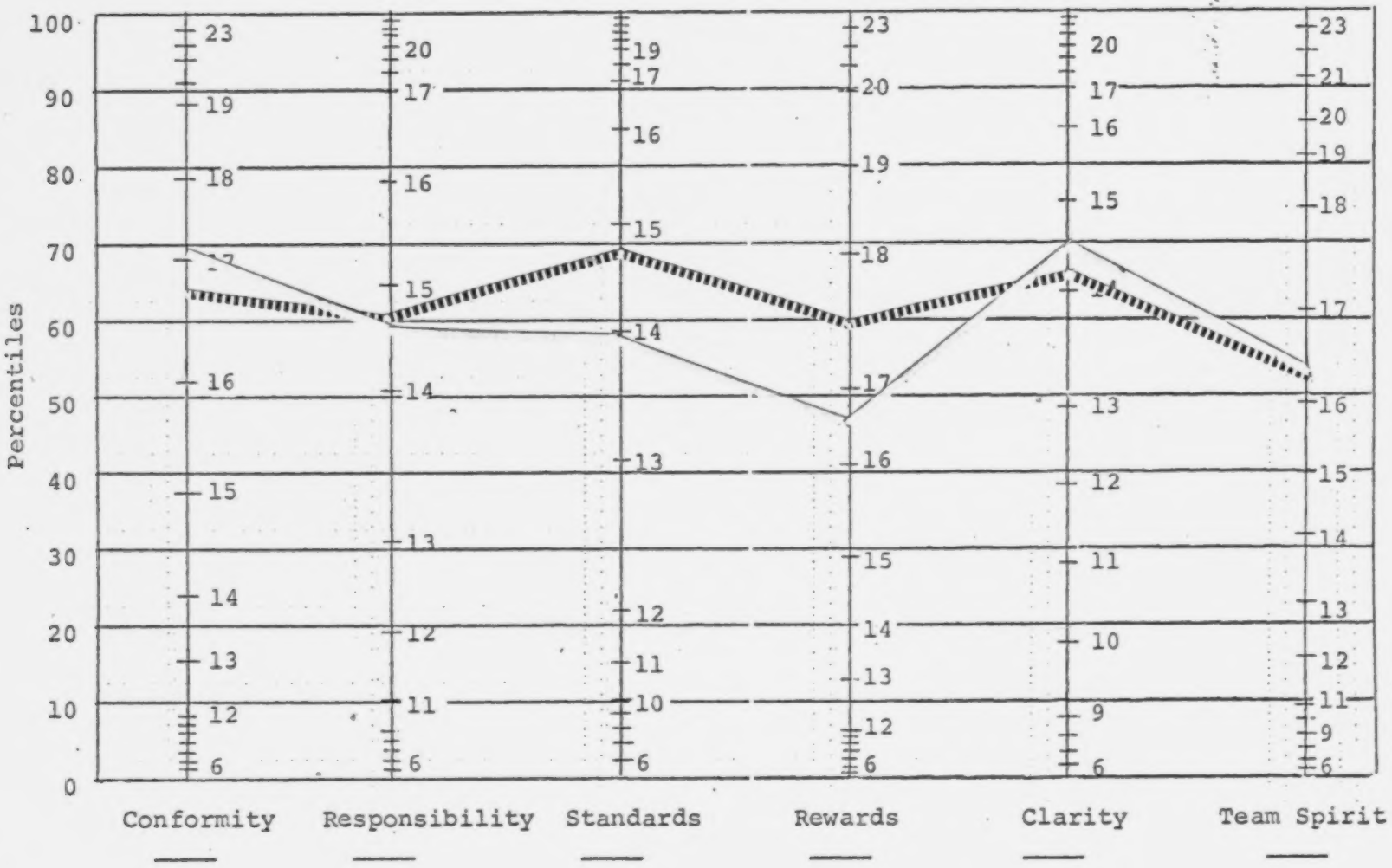
Dunbar High School
Washington, D. C.

CONTROL GROUP

PRETEST

POST-TEST

PROFILE SHEET FOR CLASSROOM CLIMATE SURVEY



Dunbar High School
Washington, D. C.

EXPERIMENTAL GROUP

PRETEST

POST-TEST

Warren

CLIMATE SURVEY

Scoring Sheet

Identification IE3045

	−2 DD	−1 ID	+1 IA	+2 DA
1.	1	2	3	4
2.	4	3	2	1
3.	1	2	3	4
4.	4	3	2	1
5.	4	3	2	1
6.	1	2	3	4
7.	1	2	3	4
8.	1	2	3	4
9.	1	2	3	4
10.	1	2	3	4
11.	4	3	2	1
12.	4	3	2	1
13.	4	3	2	1
14.	1	2	3	4
15.	4	3	2	1
16.	1	2	3	4
17.	1	2	3	4
18.	4	3	2	1
19.	4	3	2	1
20.	1	2	3	4
21.	1	2	3	4
22.	4	3	2	1
23.	1	2	3	4
24.	1	2	3	4
25.	1	3	3	4
26.	1	2	3	4
27.	1	2	3	4
28.	1	2	3	4
29.	1	2	3	4
30.	4	3	2	1
31.	4	3	2	1
32.	4	3	2	1
33.	4	3	2	1

	CONFORMITY	RESPONSIBILITY	STANDARDS	REWARDS	ORGANIZAT'L CLARITY	TEAM SPIRIT
	2	3	4	2	2	2
	3	4	1	2	4	3
	2	3	4	1	2	4
	3	4	2	1	3	2
	2	3	4	1	3	2
	2	3	4	1	3	2
	2	3	4	1	3	2
	2	3	4	1	3	2
	2	3	4	1	3	2
	2	3	4	1	3	2
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	2	3	4	1	3	2
	2	3	4	1	3	2
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	2	3	4	1	3	2
	2	3	4	1	3	2
	2	3	4	1	3	2
	2	3	4	1	3	2
	2	3	4	1	3	2
	2	3	4	1	3	2
	2	3	4	1	3	2
	2	3	4	1	3	2
TOTALS	15	16	15	18	13	16

Circle one:
Actual
Should Be

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Washington Technical Institute

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Principal Investigators

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Elaine C. Meimed

Bachelor of Science
Degree Program in
Teaching Technology

in

cooperation

with

Metropolitan Educational
Council for Staff
Development

CONDUCTS

Career Awareness Training

January

10--24

PROGRAM

MONDAY

Forced Learning & Career Goal Setting

TUESDAY

Critique/Feedback
Decision Making Exercise
The Role of Career Chance

WEDNESDAY

Critique/Feedback
Consensus Exercise
Career options (lecturette)
Working Helping Relationships

THURSDAY

Critique/Feedback
Trust & Affiliation Exercise
Psychology of Careers

FRIDAY

Critique/Tours (January 21,1972)
Career Training Options at WTI
Vocation and Self Concept by
Dr. Addison Hobbs
Director of the
Bachelor of Science
in
Teaching Technology

CAREER AWARENESS

Training in simulations (achievement motivation methods) is the process whereby learning concepts are advanced through the use of exercises or games. The intent of the training is to have the participants experience the concepts and then develop them through group process.

This effort is one of a series of career and staff development activities to be conducted during the year 1971-72 for the District of Columbia Public Schools. These seminars are designed to develop Career Education Leadership within both the academic and vocational high schools.